

April 5, 1927.

1,623,478

R. F. JAHN
PRINTING DIE STRUCTURE

Filed Aug. 20, 1925

2 Sheets-Sheet 1

Fig. 2

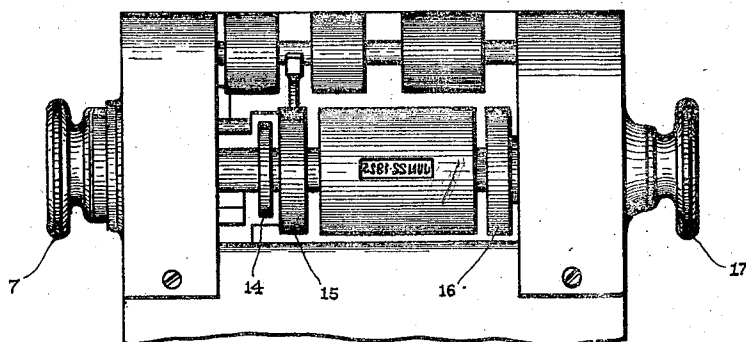


Fig. 1

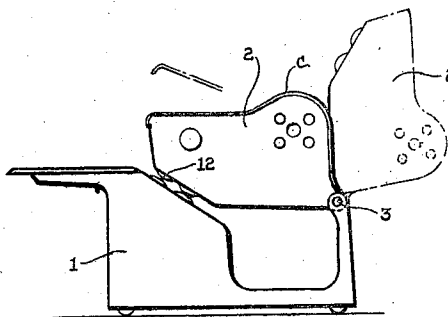
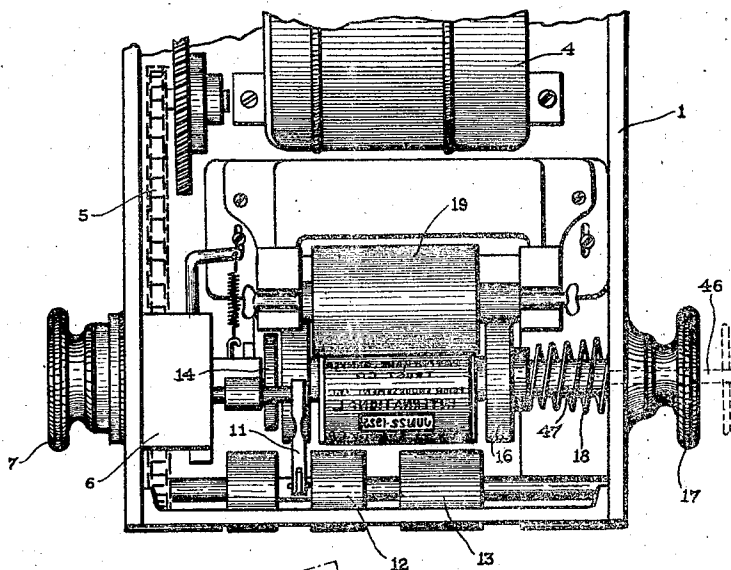


Fig. 11

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2 Sheets-Sheet 2

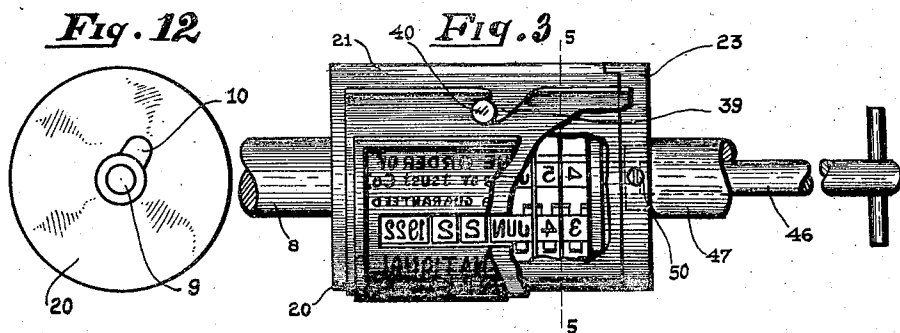


Fig. 5

Fig. 6

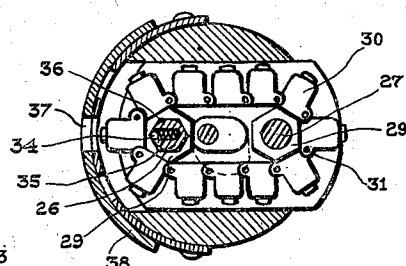
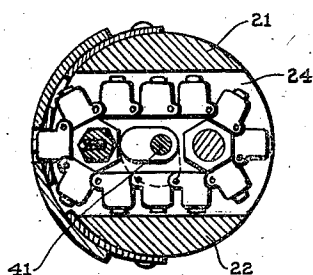


Fig. 7

Fig. 4

Fig. 8

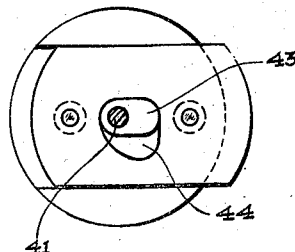
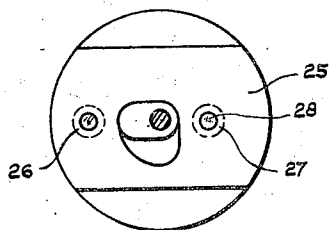
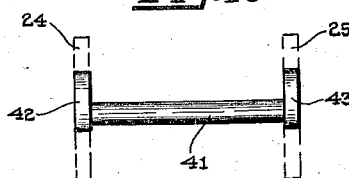
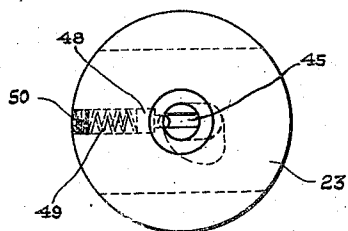


Fig. 9

Fig. 10



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PRINTING-DIE STRUCTURE.

Application filed August 20, 1925. Serial No. 51,485.

This invention relates to a printing die structure which may be used in various combinations, but for the purpose of illustration, I have chosen to illustrate the same in connection with a check endorsing machine such as disclosed in Patent No. 1,548,699, issued August 4, 1925, to Lawrence J. Zahn.

My invention is directed to improvements in the die structure such as illustrated in the said Zahn patent and has for one of its objects the provision of a die structure in which the type blocks may be quickly moved to a printing or non-printing position for purposes which will be hereinafter set forth.

Another object of my invention is to provide a die structure in which the relatively permanent part of the structure comprising the die plate, may be securely locked in position by the resettable portion of the die.

Another object of my invention is to provide a die structure in which the resettable portion comprises a unitary structure in which the type blocks may be readily moved from one position to another and in which the various positions are definitely locked.

Another object of my invention is to provide a die structure in which the resettable portion is operated by a key which may be quickly inserted into an operative position whereby the resettable portion of the die may be quickly moved by the key.

Another object of my invention is to provide automatic locking means which is preferably controlled by the insertion and withdrawal of the operating key.

Another object of my invention is to provide a die structure in which particularly, the resettable portions are sturdy in construction and therefore adapted to give long service in operation.

These and other objects will be apparent to one skilled in this particular art after a study of the specification taken in connection with the annexed drawings, wherein—

Figure 1 is a partial plan view of a check endorsing machine with the cover removed.

Figure 2 is a fragmentary view of a check endorsing machine such as shown in the Zahn patent, but with the portion carrying the die structure raised up to the position shown in dotted line in Fig. 11 showing a bottom view of the die structure in position in the machine.

Figure 3 is a view of the die structure removed from the machine with a part of the

die cover broken away to show the adjustable type blocks within the die also showing the operating key in position.

Figure 4 is a view approximately of double size of one of the type blocks.

Figure 5 is a section on the line 5—5 of Fig. 3 with the resettable part of the die in printing position.

Figure 6 is a view similar to Fig. 5 but with the resettable portion of the die in non-printing position.

Figure 7 is a right hand end view of Fig. 3 with the die hub cap removed and with the type block carrier in the printing position, the same as shown in Fig. 5.

Figure 8 is a view similar to Fig. 7, but with the type block carrier moved laterally to the right corresponding to the position of Fig. 6.

Figure 9 is an end view of the die structure shown in Fig. 3 showing the locking plunger in dotted lines.

Figure 10 is a view of the cam shaft for operating the type block carrier.

Figure 11 is a view on a reduced scale of the check endorsing machine, the same as shown in the Zahn patent.

Figure 12 is a left hand end view of the die structure showing the means for making the drive connection between the driving shaft and the die structure.

Referring now to the details wherein like numbers refer to corresponding parts in the various views, 1 is a framework carrying a portion 2 that is rotatable about the pivot 3. On the portion 2 is carried an electric motor 4 which is connected through the medium of necessary gears and chain 5 with a trip and clutch mechanism 6. A hand wheel 7 is attached to the drive shaft 8 and is used for setting the die. The shaft 8 makes a driving connection with the end of the die structure through the medium of the counterbore 9 and recess 10 at the end of the die. A trip tongue 11 controls the operation of the die all as set forth in said Zahn patent. The checks or other papers to be stamped are fed to the die through the medium of the rollers 12 and 13. 14 is a stop disc fastened to the drive shaft while 15 and 16 are die spindle feeding rolls which run as idlers on independent bearings preferably of the non-friction type. A handle 17 which is adapted to be pulled out against the tension of a release spring 18 is used to provide

a bearing for the corresponding end of the die structure. 19 is an ink roller for inking the surface of the die as it is rotated.

The above brief description of the check endorsing machine has been given in order to make the application of my invention to this type of machine more clearly understood. Coming now to the details of the die itself, the die is provided with a die hub 20 which has preferably integral therewith a pair of laterally extending arms 21 and 22 which may be generally referred to as the die hub. On the outer end of the arms 21 and 22 is attached in any satisfactory manner, a die hub cap 23. Between the arms 21 and 22 of the die hub is positioned a unitary type block carrier composed of a pair of plates 24 and 25, the plate 24 being closely adjacent the hub 20 while the plate 25 is closely adjacent the hub cap 23. Two plates 24 and 25 are connected together by a plurality of support studs 26 and 27. The ends of the studs 26 and 27 are preferably reduced in diameter and have shouldered portions 28 that fit into the plates 24 and 25 thereby anchoring the said plates together. On the support studs 26 and 27 is carried a plurality of bearing members 29 that are in the shape of a polygon, preferably hexagonal. Carried on the bearing members 29 is a series of type blocks 30 that are pivoted together at 31, the tongue 32 of one type block fitting in the slot 33 of another block thereby forming a flexible link of type blocks which are rotatable with the bearings 29 on the support studs 26 and 27.

As will be noticed in Fig. 3, there are several groups or links of type blocks to make up the required dating caption. At least one of the bearing members 29 of each group of type blocks is provided with a positioning device comprising a plunger in the shape of a ball 34 which is pressed outwardly by a spring 35 positioned in one of the studs; for example, 26. The spring 35 pressing against the plunger 34 pushes the same into one of the pockets 36 which are positioned with respect to the interior surfaces of one of the bearing members 29 so as to cause the same to be positively positioned so one face of the bearing surface is substantially parallel with the face of one of the type blocks 30 as the link composed of the type blocks 30, is turned to bring the proper indicia on the block in alignment with a slot 37 in the die plate 38. The die plate 38 carries what may be termed the relatively permanent indicia part of the printing die. The plate 38 is provided with notches 39 which engage pins 40 carried by the arms 21 and 22 of the die hub. As shown in Fig. 3 only one of the notches 39 and one of the pins 40 are in view.

Carried by and between the die hub 20 and the hub cap 23, is a cam shaft 41 having

a cam 42 at one end and a cam 43 on the other. The cams 42 and 43 are positioned within openings 44 in the plates 24 and 25 which constitute the sliding supports for the type block carrier. The end of the cam shaft 41 is slotted at 45 to receive a key 46 which is inserted through the end of the stub support shaft 47. The hub cap 23 is provided with a plunger 48 whose end is adapted to enter the slot 45 as will be seen from Fig. 9, when the key 46 is withdrawn. The plunger 48 is pressed toward the slot 45 by a spring 49 held in position by a screw 50 mounted together with the said spring and plunger in the hub cap 23. In normal position the plunger 48 is such as to hold the cam shaft 41 in the position shown in Fig. 9 or when the cam shaft is turned 180° the plunger again enters the slot 45. When the key 46 is inserted through the hollow stub shaft 47, the end of the key acts on the end of the plunger 48 to push the same out of the slot 45 thereby breaking the lock as above described and allowing the cam shaft 41 to be turned. Assuming that the cam shaft 41 is in the position shown in Fig. 5, when the key is inserted as above described and turned 180° the cams 42 and 43 acting on the plates 24 and 25, move the entire carrier groups of type blocks carried thereon, to the right as shown in Fig. 6, thereby withdrawing the row of type blocks 30 which were previously positioned within the slot 37 of the die plate 38 so that the various type block links may be turned about the support studs 26 and 27 to bring the different type blocks in alignment with said slot 37. After the proper date has been set up in a row, the key 46 is turned 180° backward which moves the carrier in the position shown in Fig. 5, causing the selected row of type blocks to enter the slot 37, thereby locking the die plate 38 securely in position, it being observed that the die plate 38 may be readily removed when the type block carrier is moved to the non-printing position shown in Fig. 6.

While I have shown and described one embodiment of my invention, it will be clearly apparent that the details may be varied over a considerable range; therefore, I do not wish to be unduly limited in the interpretation of the appended claims.

Having thus described my invention what I claim is:

1. In a device of the class described, a hub having laterally extending arms, a cap adapted to be attached to the outer ends of said arms, a carrier movably mounted between the hub and cap, a cam shaft supported between the hub and cap, a cam on the cam shaft at each end of the carrier and adapted to act on the carrier to move the same and a plurality of type blocks supported by said carrier.

2. In a device of the class described, a hub

having laterally extending arms, a cap adapted to be attached to the outer ends of said arms, a carrier movably mounted between the hub and cap, a cam shaft supported between the hub and cap, a cam on the cam shaft at each end of the carrier and adapted to act on the carrier to move the same, a series of type blocks connected together so the series may be rotated on the carrier and a plurality of groups of said series of blocks supported by the carrier.

3. In a device of the class described, a hub having laterally extending arms, a cap adapted to be attached to the outer ends of said arms, a carrier movably mounted between the hub and cap, a cam shaft supported between the hub and cap, a cam on the cam shaft at each end of the carrier and adapted to act on the carrier to laterally move the same between said arms, said carrier including a plurality of support studs, bearing members on said studs, a series of type blocks connected together and supported on said bearing members and a plurality of groups of said series of blocks similarly supported by said carrier studs.

4. In a device of the class described, a hub having laterally extending arms, a cap adapted to be attached to the outer ends of said arms, a carrier movably mounted between the hub and cap, a cam shaft supported between the hub and cap, a cam on the cam shaft at each end of the carrier and adapted to act on the carrier to laterally move the same between said arms, said carrier including a plurality of support studs, polygonally shaped bearing members rotatable on said studs, a series of type blocks connected so as to be moved in unison and supported on said bearing members and a plurality of groups of said series of blocks similarly supported on said carrier studs.

5. In a device of the class described, a hub having laterally extending arms, a cap adapted to be attached to the outer ends of said arms, a carrier movably mounted between the hub and cap, a cam shaft supported between the hub and cap, a cam on the cam shaft at each end of the carrier and adapted to act on the carrier to laterally move the same between said arms, said carrier including a plurality of support studs, polygonally shaped bearing members rotatable on said studs, a series of type blocks connected so as to be moved in unison and supported on said bearing members and a plurality of groups of said series of blocks similarly supported on said carrier studs, at least one of the bearing members in each group of type blocks having means cooperating with its support stud for positioning the bearing member on rotation of the associated series of type blocks.

6. In a device of the class described, a hub having laterally extending arms with

inner parallel faces, a cap on the outer ends of said arms, a carrier comprising; a pair of discs positioned between said parallel faces, one adjacent the hub and the other adjacent the cap, said discs having cam openings therein, a plurality of studs connecting said discs; bearing members on said studs, a series of type blocks connected together and supported on said bearing members, a cam positioned within the opening in each disc and a cam shaft supported in the hub and cap for operating said cams.

7. In a device of the class described, a hub having laterally extending arms with inner parallel faces, a cap on the outer ends of said arms, a carrier comprising; a pair of discs positioned between said parallel faces, one adjacent the hub and the other adjacent the cap, said discs having cam openings therein, a plurality of studs connecting said discs; bearing members on said studs, a series of type blocks connected together and supported on said bearing members, a cam positioned within the opening in each disc, a cam shaft supported in the hub and cap for operating said cams and means for locking the cam shaft and carrier in its printing or non-printing position.

8. In a device of the class described, a hub having laterally extending arms with inner parallel faces, a cap on the outer ends of said arms, a carrier comprising; a pair of discs positioned between said parallel faces, one adjacent the hub and the other adjacent the cap, said discs having cam openings therein, a plurality of studs connecting said discs; bearing members on said studs, a series of type blocks connected together and supported on said bearing members, a cam positioned within the opening in each disc, a cam shaft supported in the hub and cap for operating said cams and means for locking the cam shaft and carrier in its printing or non-printing position, said locking means being automatically disabled on insertion of means for turning the cam shaft.

9. In a printing die structure, a die hub including extending arms, a cap at the outer extremity of said arms, a die plate carried on said hub and spanning the opening on one side between said arms, said die plate having a slot therein, a carrier slidably positioned between said arms, a shaft extending through the carrier and supported by the hub and cap, a plurality of groups of type blocks arranged in series and adjustably mounted on said carrier, means operated by said shaft for moving the carrier so a row of type blocks may be moved into and out of the slot in the die plate for the purposes described and means for locking the carrier in at least the printing position of the die structure.

10. In a printing die structure, a die hub including extending arms, a cap at the outer

extremity of said arms, a die plate carried on said hub and spanning the opening on one side between said arms, said die plate having a slot therein, a carrier slidably positioned between said arms, a shaft extending through the carrier and supported by the hub and cap, a plurality of groups of type blocks, each group comprising a plurality of type blocks adjustably mounted in tandem relation on the carrier, means for definitely positioning each group as it is adjusted, means operated by said shaft for moving the carrier so a row of type blocks may be moved into and out of the slot in the die plate for the purpose described and means for automatically locking the shaft and carrier in at least the printing position of the die structure.

11. In a printing die structure, a framework, a die plate adapted to be attached to the outer periphery of the framework, said die plate having a slot therein, a carrier slidably mounted within the framework, a shaft supported by said framework; a plurality of groups of type blocks, each group comprising a plurality of type blocks adjustably mounted in tandem relation on the carrier, means operated by said shaft for moving the carrier so a row of type blocks may be moved into and out of the slot in the die plate for the purposes described and means for locking the carrier in at least the printing position of the die structure.

12. In a printing die structure, a framework, a die plate adapted to be attached to the outer periphery of the framework, said die plate having a slot therein, a carrier slidably mounted within the framework, a shaft supported by said framework; a plurality of groups of type blocks, each group comprising a plurality of type blocks adjustably mounted in tandem relation on the carrier, means operated by said shaft for moving the carrier so a row of type blocks may be moved into and out of the slot in the die plate for the purposes described and means for locking the carrier in at least the printing position of the die structure, said locking means being automatically actuated and disabled on the respective withdrawal and insertion of means for operating said shaft.

13. In a printing die structure, a framework, a die plate adapted to be attached to the outer periphery of the framework, said die plate having a slot therein, a carrier comprising a pair of spaced plates and support studs therebetween, said plates adapted to be moved toward and away from said die plate, supports on said studs, a series of type blocks yieldingly attached together and carried on said supports, said series of type blocks being rotatable around said supports and a cam shaft having cams for acting on said carrier plates to move the same toward

or from said die plate for the purposes described.

14. In a printing die structure, a framework, a die plate adapted to be attached to the outer periphery of the framework, said die plate having a slot therein, a carrier comprising a pair of spaced plates and support studs therebetween, said plates adapted to be moved toward and away from said die plate, polygonally shaped supports rotatably carried on said studs, a series of type blocks forming an adjustable link around said supports and a shaft having means cooperating with said carrier plates to move the same toward or from said die plate for the purposes described.

15. In a printing die structure, a framework, a die plate adapted to be attached to the outer periphery of the framework, said die plate having a slot therein, a carrier comprising a pair of spaced plates and support studs therebetween, said plates adapted to be moved toward and away from said die plate, polygonally shaped supports rotatably carried on said studs, a series of type blocks forming an adjustable link around said supports and a shaft having means cooperating with said carrier plates to move the same toward or from said die plate for the purposes described, and a lock for securing said shaft and carrier in at least the printing position of the type blocks.

16. In a printing die structure, a framework, a die plate adapted to be attached to the outer periphery of the framework, said die plate having a slot therein, a carrier slidably mounted within the framework, a shaft supported by said framework, a plurality of groups of type blocks, each group comprising a plurality of type blocks adjustably mounted in tandem relation on the carrier, means operated by said shaft for moving the carrier so a row of type blocks may be moved into and out of the slot in the die plate for the purposes described and means for locking the carrier in at least the printing position of the die structure, said die plate being locked in position when the type blocks are moved by the carrier into said slot on the die plate.

17. In a printing die structure, a framework, a die plate adapted to be attached to the outer periphery of the framework, said die plate having a slot therein, a carrier comprising; a pair of plates mounted to move transversely within the framework, a pair of diametrically spaced support studs extending between said pair of plates; support members rotatably mounted on said studs, a link composed of type blocks pivotally attached together carried on a pair of said support members, a plurality of said links similarly arranged on said carrier, a shaft having means acting on said pair of plates for moving them transversely so a

row of said type blocks may be moved into and out of the slot in the die plate for the purposes described.

18. In a printing die structure, a framework, a die plate adapted to be attached to the outer periphery of the framework, said die plate having a slot therein, a carrier comprising; a pair of plates mounted to move transversely within the framework, a pair of diametrically spaced support studs extending between said pair of plates; support members rotatably mounted on said studs, a link composed of type blocks pivotally attached together carried on a pair of said support members, a plurality of said links similarly arranged on said carrier, means cooperating between at least one of the support studs and the support members thereon for positively positioning each of said links as they may be rotated on the support members, a shaft having means acting on said pair of plates for moving them transversely so a row of said type blocks may be moved into and out of the slot in the die plate for the purposes described, and means for locking the carrier and shaft in at least the printing position of the die blocks.

19. In a printing die structure, a framework, a die plate adapted to be attached to the outer periphery of the framework, said die plate having a slot therein, a plurality of groups of indicia arranged within the framework so as to be brought into rows and means for laterally moving all of said groups of indicia so a row thereof may be moved into or out of the slot in said die plate for the purposes described.

20. In a printing die structure, a framework, a die plate adapted to be attached to the outer periphery of the framework, said die plate having a slot therein, a plurality of groups of indicia arranged within the framework so as to be brought into rows and means for laterally moving all of said groups of indicia so a row thereof may be moved into or out of the slot in said die plate for the purposes described, and means for locking some part of said indicia moving means in at least the position for printing.

21. In a printing die structure, a framework, a die plate adapted to be attached to the outer periphery of the framework, said die plate having a slot therein, a plurality of groups of indicia carried within the framework, each group consisting of type blocks attached together as a rotatable link, means for positively positioning each link to form a row of indicia when it is rotated the distance of one type block and means for laterally moving all of said groups of indicia so a row thereof may be moved into or out of the slot in said die plate for the purposes described.

22. In a printing die structure, a framework, a die plate adapted to be attached to the outer periphery of the framework, said die plate having a slot therein, a plurality of groups of indicia carried within the framework, each group consisting of metal type blocks pivoted together forming a flexible link, rotatable bearing members for each of the links, said bearing members having faces to fit the associated faces on the type blocks, means for positively positioning each link to form a row of indicia when it is rotated the distance of one type block and means for laterally moving all of said groups of indicia so a row thereof may be moved into or out of the slot in said die plate for the purposes described.

23. In a printing die structure, a framework, a die plate adapted to be attached to the outer periphery of the framework, said die plate having a slot therein, a plurality of groups of indicia carried within the framework, each group consisting of type blocks attached together as a rotatable link, means for positively positioning each link to form a row of indicia when it is rotated the distance of one type block and means for laterally moving all of said groups of indicia so a row thereof may be moved into or out of the slot in said die plate for the purposes described and a lock for preventing lateral movement of said groups of indicia when they have been moved the limit in at least one direction.

24. In a printing die structure, a framework, a die plate adapted to be attached to the outer periphery of the framework, said die plate having a slot therein, a plurality of groups of indicia carried within the framework, each group consisting of type blocks attached together as a rotatable link, means for positively positioning each link to form a row of indicia when it is rotated the distance of one type block and means for laterally moving all of said groups of indicia so a row thereof may be moved into or out of the slot in said die plate for the purposes described and a lock under the control of the actuating means for moving all of said groups of indicia for preventing lateral movement of said groups of indicia when they have been moved the limit in at least one direction.

25. In a printing die structure, a framework, a quickly removable, interchangeable die plate slidably mounted on the outer periphery of the framework, said plate having a slot therein, means for locking said plate in position comprising a plurality of groups of indicia arranged within the framework so as to be brought into rows in alignment with said slot and means for laterally moving all of said groups of indicia so a selected row thereof may be moved into the slot in said die plate.

26. In a printing die structure, a framework and a die plate carried thereby, a plurality of groups of indicia comprising type blocks housed and arranged within the framework so as to be set into rows adapted for printing through said guide plate, means for laterally moving all of said groups of indicia so a row thereof may be brought either into printing or setting position and means for locking said groups in at least one of said positions.

27. In a printing die structure, a framework and a die plate carried thereby, a plu-

ality of groups of indicia comprising type blocks housed and arranged within the framework so as to be rotatably set into rows adapted for printing through said guide plate, means for simultaneously moving laterally all of said groups of indicia so a row thereof may be brought either into printing or setting position and means under the control of said moving means for locking said groups in at least one of said positions.

In testimony whereof, I affix my signature.

RAYMOND F. JAHN.