Oct. 16, 1951 J. E. LEE ET AL 2,571,263

PRINTER'S QUOIN

Filed July 18, 1949

FIG. 1.

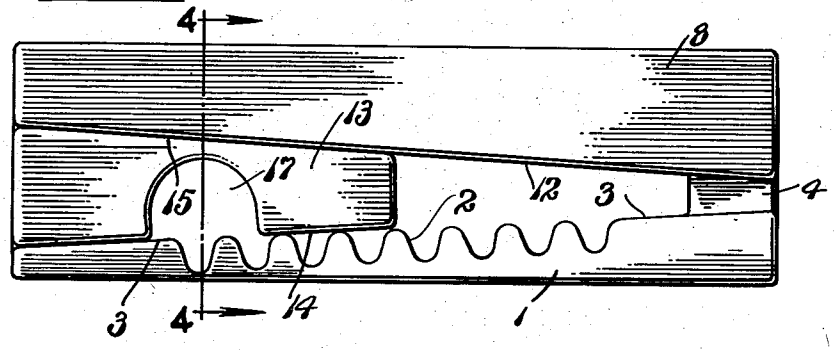


FIG. 2.

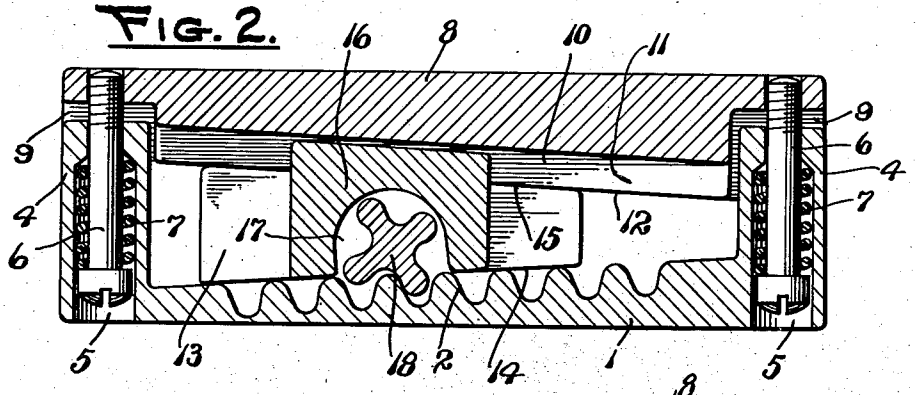
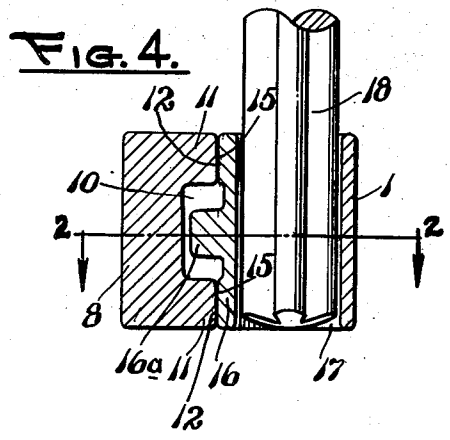


FIG. 4.



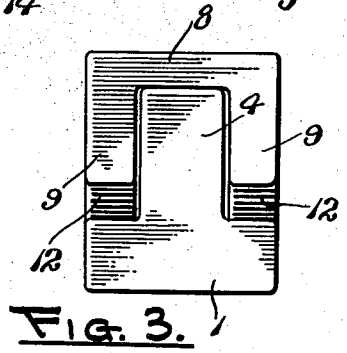


FIG. 3.

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PRINTER'S QUOIN

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6 Claims. (Cl. 254—42)

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This invention relates to a printer's quoin, a primary object and purpose of which is a special economy in manufacture, while at the same time the quoin when assembled remains assembled as a unit, and when about to be used does not have to have its parts selected and properly placed each time that it is used. Additionally, the quoin of the present invention expands by a direct expanding movement at right angles to its length, and there is eliminated the sliding of one member against the form and the other against the chase in which the form is located and the movement of the form is directly at right angles to the side of the chase, and there is no tendency through friction between the quoin and the parts it bears against to become displaced.

In the present invention, the quoin consists essentially of three parts; one, a relatively elongated part to bear against a form, another part generally parallel thereto to bear against the chase, the two quoin parts or members being with their outer surfaces parallel to each other and located alongside each other. Between them, a movable wedge member is located and may be operated to move in the direction of the length of the quoin, either way, for spreading or expanding the quoin members or releasing them, said wedge member and quoin members having cooperating inclined or wedge sides so that the lateral separation of the two quoin members occurs equally from one end to the other of the quoin. The wedge is operated by quoin key which is or may be identical with the key used with other types of quoins, as for example, the well known and popular number one "Hemple" quoins. Thus printers having quoins of both types on hand may operate either with the same key.

With our invention the quoin may be made from malleable iron and with sufficient tolerances between the various parts thereof that the cost of machining and assembling are greatly reduced and the overall cost of the quoin compared to previous quoins made of steel, all parts of which are machined, may be reduced to substantially one third of such steel quoins. The quoin members which lie alongside of each other and which are separated by operation of the wedge member between them are normally drawn together as closely as the wedge member will permit by strong springs which are compressed as the quoin is expanded. Such springs are housed and out of sight and are associated with the connecting means which connect the two separable quoin members to each other and maintains them at all times in their assembled relation.

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An understanding of the invention may be had from the following description, taken in connection with the accompanying drawing, in which,

Fig. 1 is a plan view of the quoin.

Fig. 2 is a longitudinal horizontal section therethrough substantially on the plane of line 2—2 of Fig. 4.

Fig. 3 is an end elevation, and

Fig. 4 is a transverse vertical section substantially on the plane of line 4—4 of Fig. 1.

Like reference characters refer to like parts in the different figures of the drawing.

In the structure of the quoin as disclosed in the drawing, one member 1 of the quoin has a flat outside surface and at its inner side between its ends is provided with a consecutive series of transverse rack teeth 2, said member at its inner side beyond the rack teeth and at the ends of the rack teeth themselves lying in a plane, indicated at 3, which is inclined at an acute angle to the flat outer side of the quoin. At each end the quoin is provided with an integral post 4 which extends inwardly beyond the inner inclined side 3. Each post is formed with an opening or recess 5, from the outer side of the quoin toward but short of the inner end of the post in which the head and a part of the shank of a screw 6 is located, the shank of the screw extending through the post at its inner end. A coiled compression spring 7 of a considerable strength is located around each screw between its head and the bottom of the opening or recess 5.

The other and generally parallel member 8 of the quoin has threaded openings adjacent its ends into which the threaded ends of the shanks of screw 6 are received. The quoin member 8 at its outer side is flat and parallel to the outer side of the first member 1. At each end at its inner side it is recessed leaving side guides 9 between which the free ends of the posts 4 are received. Such member 8 also at its inner side is longitudinally grooved between the post receiving recesses, the groove being indicated at 10, leaving two side ribs 11 the edges of which likewise are located in planes inclined to the plane of the outer side of the member 8. The inclined inner sides 12 of the ribs 11 and the inclined inner side 3 of the quoin member 1 converge toward each other toward one end and diverge from each other toward the other end.

The operating wedge member between the quoin members, generally indicated at 13, is slotted at each end so that the posts 4 may be embraced when such member is moved to its extreme positions of movement. Such wedge

member at its opposite sides has inclined sides 14 and 15 respectively to bear against the inclined sides 3 and inclined edges 12 of the ribs 11. It is apparent that when such member is moved bodily lengthwise of the quoin in the direction of the convergence of the inclined sides or surfaces 3 and 12, the quoin members are bodily separated or expanded in a direction at right angles to their length.

Between the slotted end portions of the operating wedge member 13 the middle section 16 of such member is provided with a guide rib 16a which enters the groove 10 between the ribs 11. Such middle section 16 is also formed with a relatively large transverse opening 17 in the side thereof next adjacent the inner inclined side 3 of the quoin member 1 and the rack teeth thereon. An operating key having a shank 18 with a plurality of radially projecting cooperating teeth to engage the rack teeth 2 is insertable into the opening 17 to engage with the rack teeth. At its outer end the key is provided with a handle for turning it about its longitudinal axis, it being apparent that on turning the key clockwise (Fig. 2) the key will traverse the rack and force the wedging member to the right, thereby bodily separating the quoin members 1 and 8 and compressing the spring 7 in such separation. On turning in the opposite direction the springs 7 will collapse the quoin from any position to which it has been expanded as the separating or wedging member is moved in the opposite direction.

The quoin placed between the side of the form and the side of a chase is quickly and easily key operated for its expansion to lock the form in the chase at the place where the quoin is located. As many of such quoins as may be required are used in locking the form. The direct expansion of the quoin in a direction at right angles to its length eliminates all sliding movement which would develop friction between the quoin members and either the form or the chase. The quoin remains assembled with its parts inseparably connected together at all times except where such parts are designedly separated by removing the screws 6. It is evident that the assembly is very quickly and easily accomplished by locating the separating or wedging member against the quoin member 1 and thereupon inserting the screws 6, each with a spring 7 around its shank, into the openings 5 and screw connecting them to the ends of the other quoin member 8. The tolerances which may be provided between the posts 4 and the guides 9 at its sides and between the rib 16a and the guide ribs 11 at the sides thereof may be ample so that machining is substantially restricted to the outer sides of the quoin members, the inner inclined side 3 of the member 1 and the inner inclined longitudinal edges 12 of the ribs 11, while that on the operating wedge member will be restricted so far as machining is concerned to its opposite sides 14 and 15.

The quoin structure described is very practical and useful and is especially desirable because of its economy in production and its direct lateral expansion, together with its inseparable assembly and its operation by use of the same keys which are used for other printers' quoins now largely in use.

The invention is defined in the appended claims and is to be considered comprehensive of all forms of structure coming within their scope.

We claim:

1. In a printer's quoin, an elongated quoin member having a flat outer side and an inner side disposed at an acute angle to its outer side, said quoin member for a portion of its length between its ends at its inner side having a plurality of consecutive transverse rack teeth, a separating quoin expanding member located against the inner side of said quoin member and having an inclined side to ride against the inclined side thereof, and having a transverse opening therethrough between its ends open at the side thereof adjacent said rack teeth, a key having a spindle with a plurality of radially projecting spaced teeth to engage and cooperate with said rack teeth for moving said separating member back and forth lengthwise of the quoin member, and a second quoin member between which and the first quoin member said separating member is located having an outer flat side substantially parallel to the outer flat side of the first quoin member and an inner side inclined at an acute angle to the outer flat side of said second quoin member, said inclined inner sides of the quoin members converging toward one end of said quoin and diverging toward the other end thereof, and said separating member having a second side riding against the inclined inner side of the second quoin member for expanding said quoin members in a direction perpendicular to their length on key actuated movement of the separating member in the direction of the converging ends of the inclined sides of said quoin members.

2. A structure as defined in claim 1, said second quoin member at the inner side thereof having a longitudinal groove and said separating member having a rib extending into said groove and movable lengthwise thereof.

3. A structure as defined in claim 1, said second quoin member at each end having a recess between the sides thereof and said first quoin member at each end having a post, the free ends of which extend into said recesses.

4. A structure as defined in claim 3, each of said posts having a longitudinal opening from the outer side of the first quoin member extending into toward but short of the free end of each post, a screw having a head located in each of said openings and extending beyond the free ends of its associated post, said screws having a screw connection with the second quoin member at the ends thereof, and coiled compression springs one around each screw between the head thereof and the inner end of the recess in which located.

5. A printer's quoin comprising, two elongated quoin members located side by side, having parallel outer sides and inclined inner sides, closer together at one end than at the other end, and diverging from each other from said first mentioned end to the other end, a wedging member between the quoin members having sides converging toward said first mentioned end of the quoin members riding against the inclined sides of said quoin members, one of said quoin members at each end thereof having headed screws connected thereto at the screw threaded ends of said screws, said headed screws extending generally at right angles from the quoin member to which attached, and the other of said quoin members having longitudinal openings, one at each end thereof, open at the outer side of said quoin member and in which the heads of said screws and adjacent portions of the shanks thereof are located, and coiled compression

springs, one around each shank of each screw within said openings, bearing at one end against the heads of the screws and at opposite ends against the inner ends of said openings, combined with means for longitudinally moving said wedging member lengthwise of and between said quoin members.

6. A printer's quoin comprising, two elongated quoin members located in generally parallel relation and having flat generally parallel outer sides, springs housed, one at each end of one of said quoin members, a member connected at each end of the other quoin member extending therefrom into the adjacent ends of said spring carrying quoin member, and operatively associated with the springs to normally move the quoin members toward each other, said springs being yieldable to permit bodily separation of the quoin members from each other, and manually operable means between the quoin members for bodily separating them when said manually operable means is operated in one direction, said means when operated in the opposite direction freeing the quoin members for movement toward each other by said springs.

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