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H. C. REHM

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CENTER PUNCH

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Fig. 1

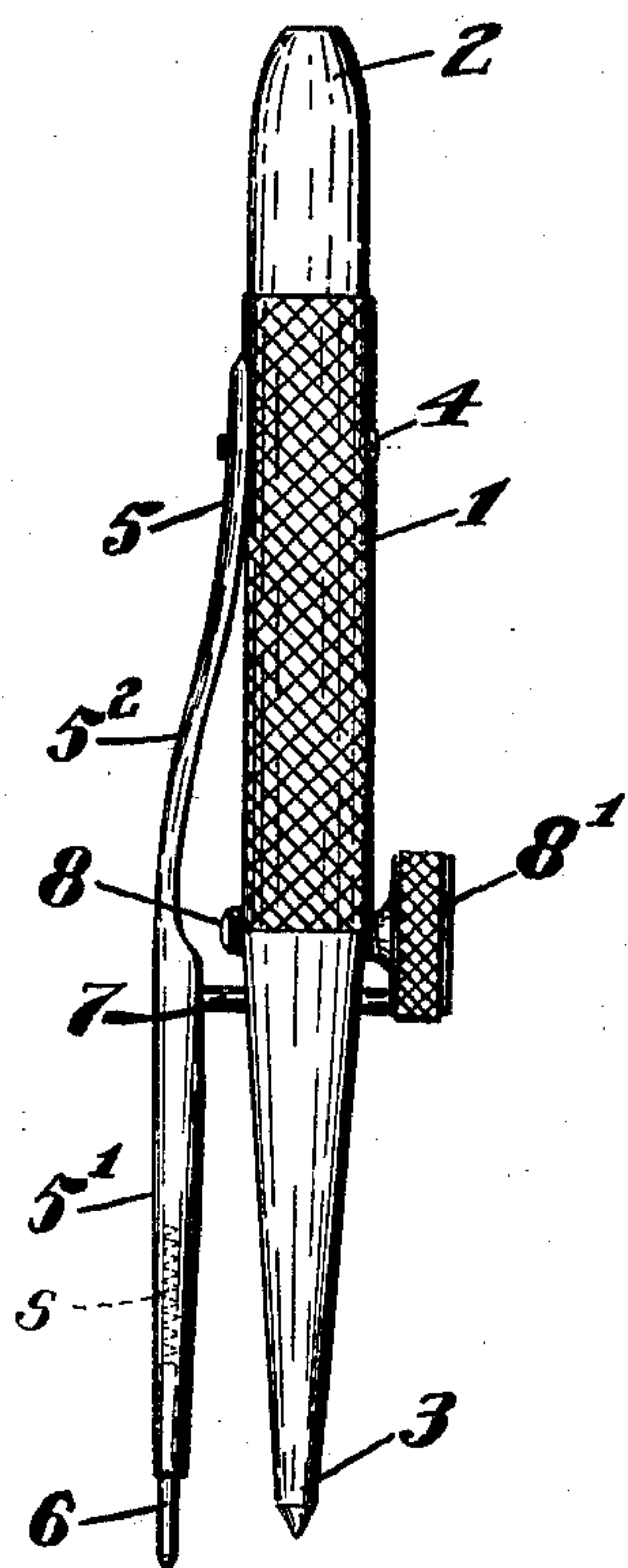


Fig. 2

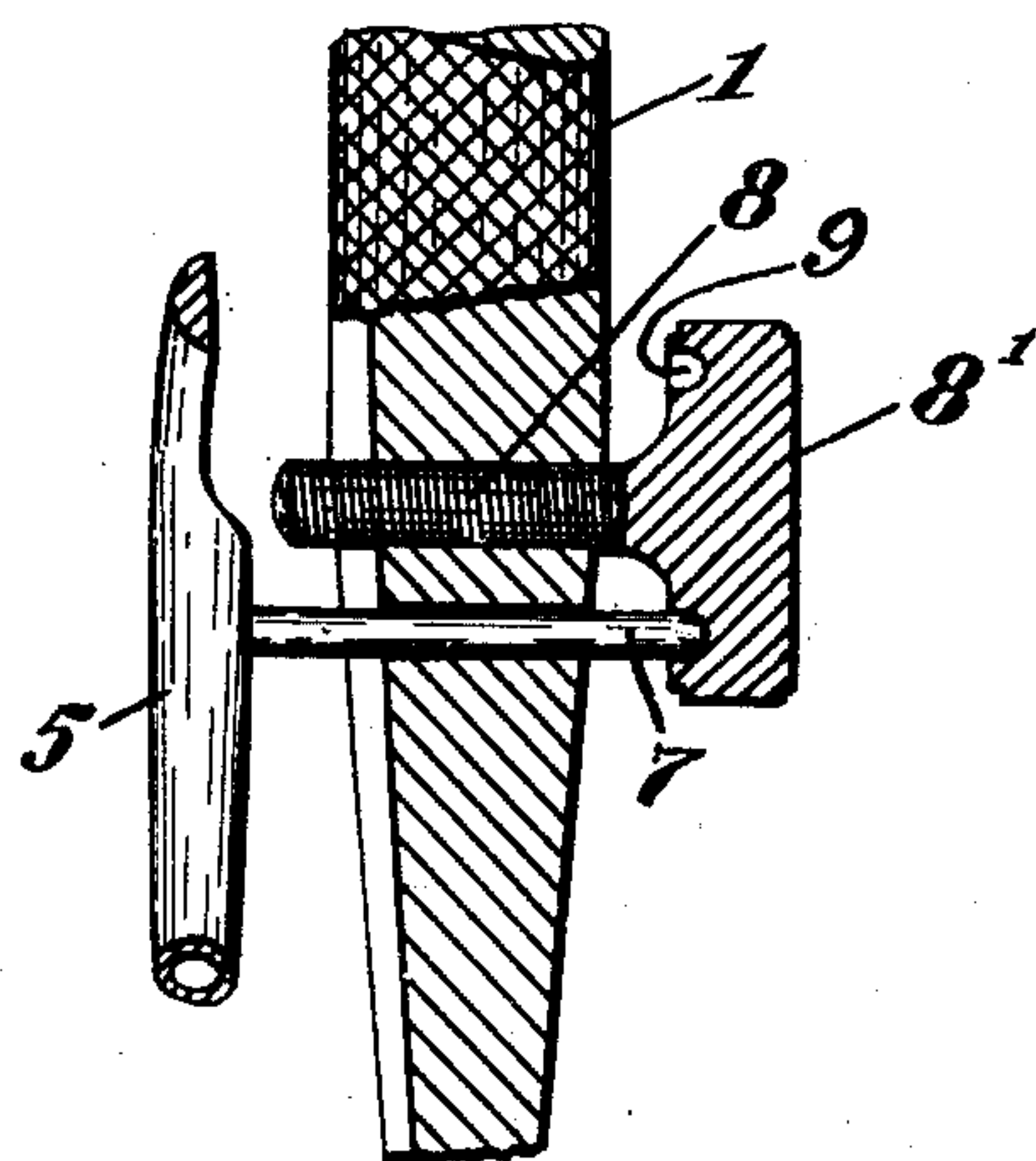
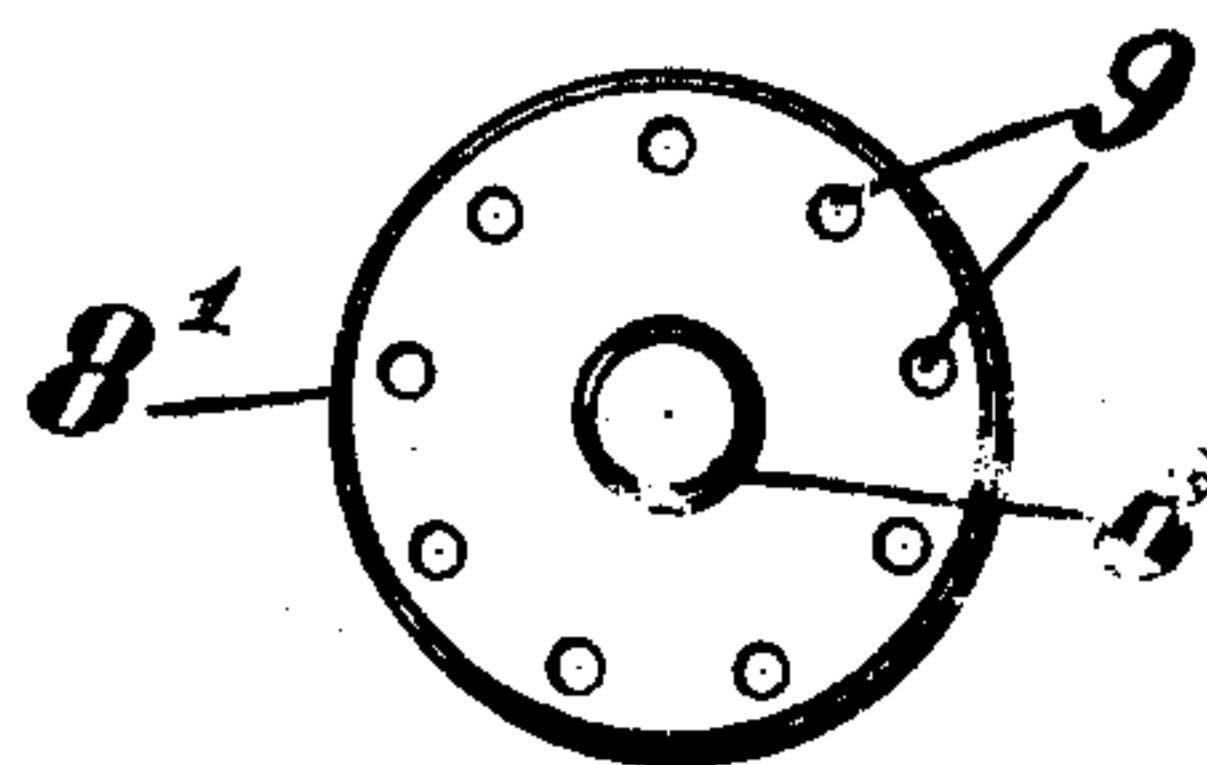


Fig. 3



Inventor
Harry C. Rehm
Deis Spang,
By Attorney

UNITED STATES PATENT OFFICE

HARRY C. REHM, OF FORT WAYNE, INDIANA, ASSIGNOR TO THE L. S. STARRETT COMPANY, OF ATHOL, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS

CENTER PUNCH

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The invention herein presented while involving in its more specific phase an improvement in spacing center punches has certain features of novelty of more general application. As the improved center punch involves a very practical advantage and also illustrates advantageously the broader principles involved, I will discuss my invention in this more specific form which is illustrated in the accompanying drawings.

In the use of spacing center punch such as is herein shown, it is well known to mechanics that they tend to lose accuracy of adjustment with a corresponding variation in spacing. In this the center punch affords a highly characteristic example because from the nature of its use it is subjected to blows which tend to move the adjusting parts. Furthermore, it is frequently desired in such adjustable devices to make a slight change in adjustment and to make that change with certainty and definiteness. In accordance with my invention I have therefore provided a locking effect by which at the same time a certain predetermined movement of the adjusting parts can be effected so that the workman does not have to rely on his own sense of touch, but is enabled to make a positive movement with definite limitation.

In the drawings I have illustrated a certain center punch of well known make and shown in connection with it my invention applied as an improvement thereto. I have illustrated this center punch in some detail in spite of the fact that the punch in general is an old and established article on the market, because my improvement while involving only a very slight change in the old and well known punch produces novel combinations with the old parts which gives them new functions as I will hereinafter describe. In the drawings:

Fig. 1 is a side elevation of the center punch above referred to.

Fig. 2 is a partly sectioned fragment of the punch showing the adjustment thereof, and

Fig. 3 is an end view of the threaded adjusting member viewed from the end so as to expose the under side of the knurled head.

The spacing center punch shown comprises

a punch member consisting of a knurled body portion 1 having a head 2 and a point 3. Attached to the body portion 1 by a screw 4 is a bent guide arm 5 having its free end 5¹ formed to receive a point 6 slidable within the part 5¹ and normally protruded by a spring S.

Fixed on the guide 5 is a pin 7 which passes through the punch 1 projecting slightly on the other side thereof and within the margin of the head 8¹ of an adjusting member 8. This adjusting member is threaded into the punch body 1 in parallelism with the pin 7. As the member 8 is turned to screw it in or out of the punch body 1, its head 8¹ bears on the free end of the pin 7 to force out the guide arm 5 to separate its point 6 from the point 3 of the punch so as to cause the desired degree of spacing between the point 6 and the point 3 of the punch. In this movement the adjustment is resisted by the resilience of the arm 5 which yields in the bent portion 5² thereof and which resilience tends to hold the pin 7 against the knurled head 8¹. All of this structure shown is old in the standard spacing center punch which I have heretofore referred to as long on the market and in very general use.

My invention contemplates the conversion of such a punch into an improved device by simply forming on the under face of the head 8¹ a series of recesses or indentations 9 so disposed as to successively pass the free end of the pin 7 when the head 8¹ is rotated.

By the simple introduction of these recesses I convert the pin 7 into a spring pressed detent which locks the head 8¹ against rotation so that it will not be moved under the shock of the hammer blows. In this function it will be noted that the resilience of the guide arm 5 provides the urge on the pin 7 in its action as a detent and conversely allows it to yield slightly when the head 8¹ is rotated, so that the point of the pin 7 can clear one recess 9 as the head 8¹ is rotated prior to the alignment of the next recess 9 with which the pin end will engage as soon as the next recess comes under the pin end.

The recesses 9 in addition to this locking feature provide a series of points at which

the rotation of the knurled head 8¹ may be stopped in definite location. That is, the head 8¹ may be turned one or more notches with definite knowledge that the head has been rotated a predetermined amount and has been stopped when that amount has been reached, without danger of over or under rotation by any slip of the fingers of the operator.

It will therefore be seen that in the specific embodiment shown I have been able by the mere addition of a series of indentations to greatly improve an existent device without adding material cost or expense in the production of the same. In this phase of my invention alone there is a definite improvement which is immediately available. My invention is capable of use in other similar structures and like devices to effect like advantages and without adding materially to the cost involved in manufacture.

What I therefore claim and desire to secure by Letters Patent is:

1. In a spacing center punch, a punch, a spring guide arm thereon, an adjusting screw carried by said punch and including a head, a thrust connection between the spring arm and head, said head having a plurality of receiving notches disposed about one face thereof for successive engagement with said thrust connection upon rotation of said screw.

2. In a spacing center punch, a punch, a spring guide arm thereon, a pin on said arm and extending through said punch, an adjusting screw carried by said punch and including a head disposed to overlie said pin and having a plurality of receiving notches disposed about its pin contacting face for successive engagement with said pin upon rotation of said screw.

3. In a spacing center punch, a punch, a spring guide arm thereon, an adjusting device including a rotatable member carried by said punch and a thrust member fixed to said spring guide arm, said rotatable member having a plurality of receiving notches disposed about one face thereof for successive engagement with said thrust member upon rotation of said rotatable member.

4. In a spacing punch, a punch member, a spring arm carried thereby, a pin fastened at one end to said arm, an adjusting member carried by said punch member and terminating in a head disposed in a plane transverse to the axis of the pin and presenting a notched bearing surface adapted to press against the free end of the pin upon rotation of the adjusting member in one direction and force the spring arm away from the punch member a distance corresponding to the degree of rotation of the head as sensitively indicated to the mechanic by the passage of the notches over the free end of the pin and said spring arm returning towards the punch member under its own spring action to cause the pin

to lodge in a notch opposite thereto and lock the head against accidental rotation.

5. In a device of the class described, a pair of relatively yielding arms, a spacing device including a rotatable adjusting head on one of said arms and having a plurality of receiving notches and a spacer pin on the other of said arms and disposed beyond the first mentioned arm but yieldingly contacting said head in the path of said notches.

6. In a spacing punch, a punch member, a spring arm carried thereby, a thrust member carried by said spring arm, and a rotatable member carried by said punch member and having a head disposed in a plane transverse to the axis of the thrust member and presenting a bearing surface adapted to press against the free end of said thrust member upon rotation of said rotatable member in one direction and force the spring arm away from the punch member.

7. In a spacing punch, a punch member, a spring arm carried thereby, a thrust member carried by said spring arm, and a rotatable member journaled in said punch member with its axis of rotation parallel to the thrust member, said rotatable member having a head disposed in a plane transverse to the axis of the thrust member and presenting a bearing surface adapted to press against the free end of the thrust member upon rotation of the rotatable member in one direction to force the spring arm away from the punch member.

8. In a spacing punch, a punch member and a spring arm carried thereby, said punch member having spaced parallel transverse bores, an adjusting member threadedly mounted in one of said bores and having a head provided with an annular series of spaced recesses, an elongated spacing member fixed at one end to said spring arm and extending through the other bore of the punch member and having its free end projecting sufficiently beyond said punch member to be successively engaged in the recesses of said head as the rotatable member is rotated relative to said elongated spacing member.

9. In a spacing punch, a pair of relatively yieldable arms, and a spacing device therefor including a relatively fixed member carried by one of said arms and a relatively rotatable member threadedly carried by the other arm, said relatively rotatable member terminating in a head disposed in a plane transverse to the axis of the relatively fixed member, and said head constituting a grasping portion whereby said rotatable member may be rotated and a bearing surface adapted to press against the free end of said relatively fixed member to effect separation of the pair of arms upon rotation of the rotatable member in one direction.

10. In a spacing punch, a pair of rela-

tively yieldable arms, and a spacing device therefor including a relatively fixed member carried by one of said arms and a relatively rotatable member threadedly carried by the other arm, said relatively rotatable member terminating in a head disposed in a plane transverse to the axis of the relatively fixed member, and said head constituting a grasping portion whereby said rotatable member may be rotated and a bearing surface adapted to press against the free end of said relatively fixed member to effect separation of the pair of arms upon rotation of the rotatable member in one direction, the bearing surface of said head having spaced formations permitting it to ride over the free end of said relatively fixed member and to be yieldingly locked by said relatively fixed member at selected phases of rotation of said head.

11. In a spacing punch, a pair of relatively yieldable arms, a rotatable member carried by one of said arms and formed to present an enlarged portion provided with a locking recess, a locking detent fixed on the opposite arm and extending parallel to the axis of rotation of said rotatable member and having its free end disposed for engagement in said recess of the rotatable member upon rotation of said rotatable member relative to said locking detent.

12. In a spacing punch, a punch member having a transverse bore, and a spring arm secured thereto, a screw set through said punch member and having a head provided with an annular series of spaced recesses, a pin fixed at one end to said spring arm and extending through the bore of said punch member parallel to the axis of rotation of said screw with its free end projecting sufficiently beyond said punch member to be successively engaged in the recesses of said head as the screw is rotated relative to the pin.

13. In a spacing punch, a pair of relatively yieldable arms, an elongated spacing member fixed to one of said arms, an adjusting member rotatably mounted on the opposite arm and provided with a head having an annular series of spaced recesses disposed to ratchet past the free end of said spacing member upon rotation of said head relative thereto and said annular series of recesses constituting an indicator to indicate definitely to the mechanic predetermined distances of rotation of the head relative to the spacing member.

In testimony whereof I affix my signature.
HARRY C. REHM.