

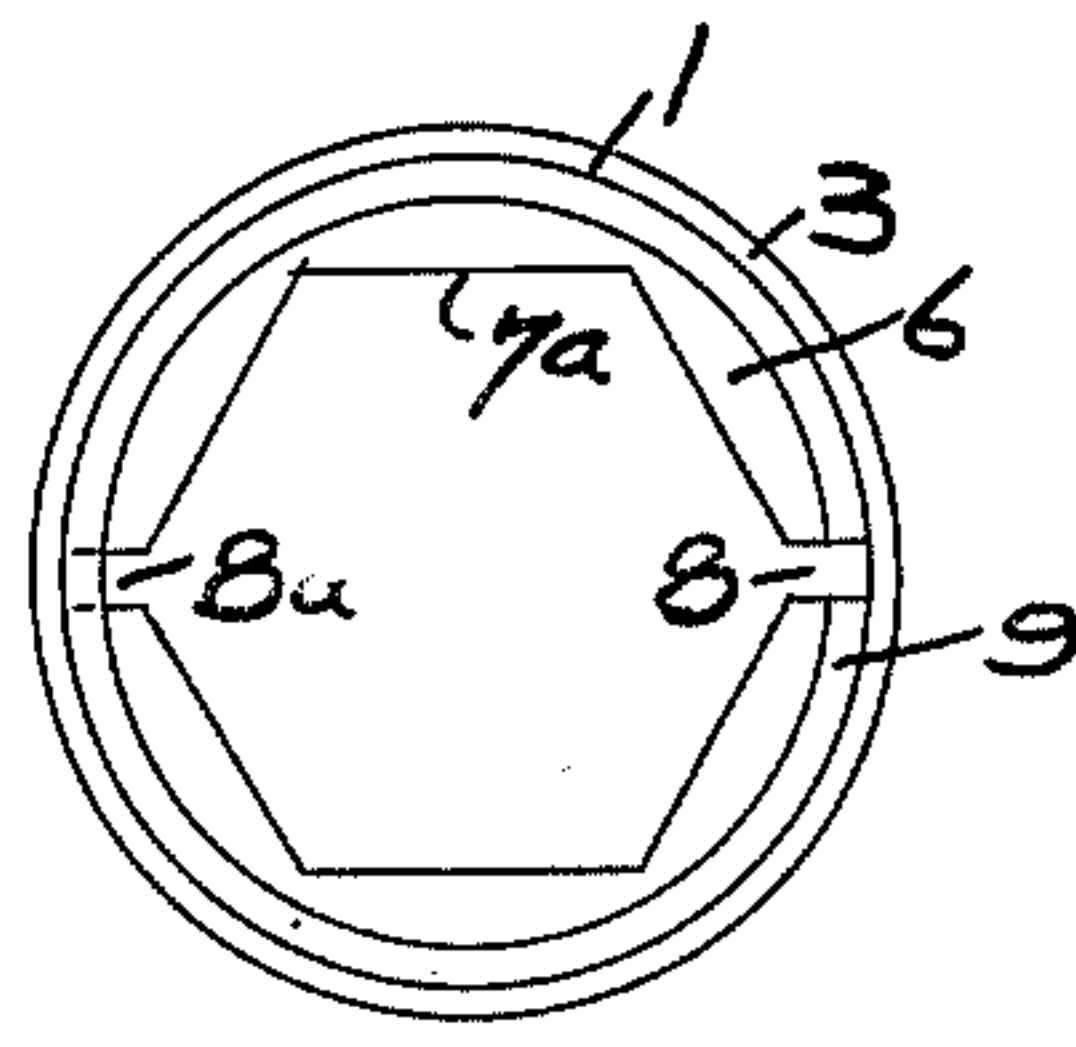
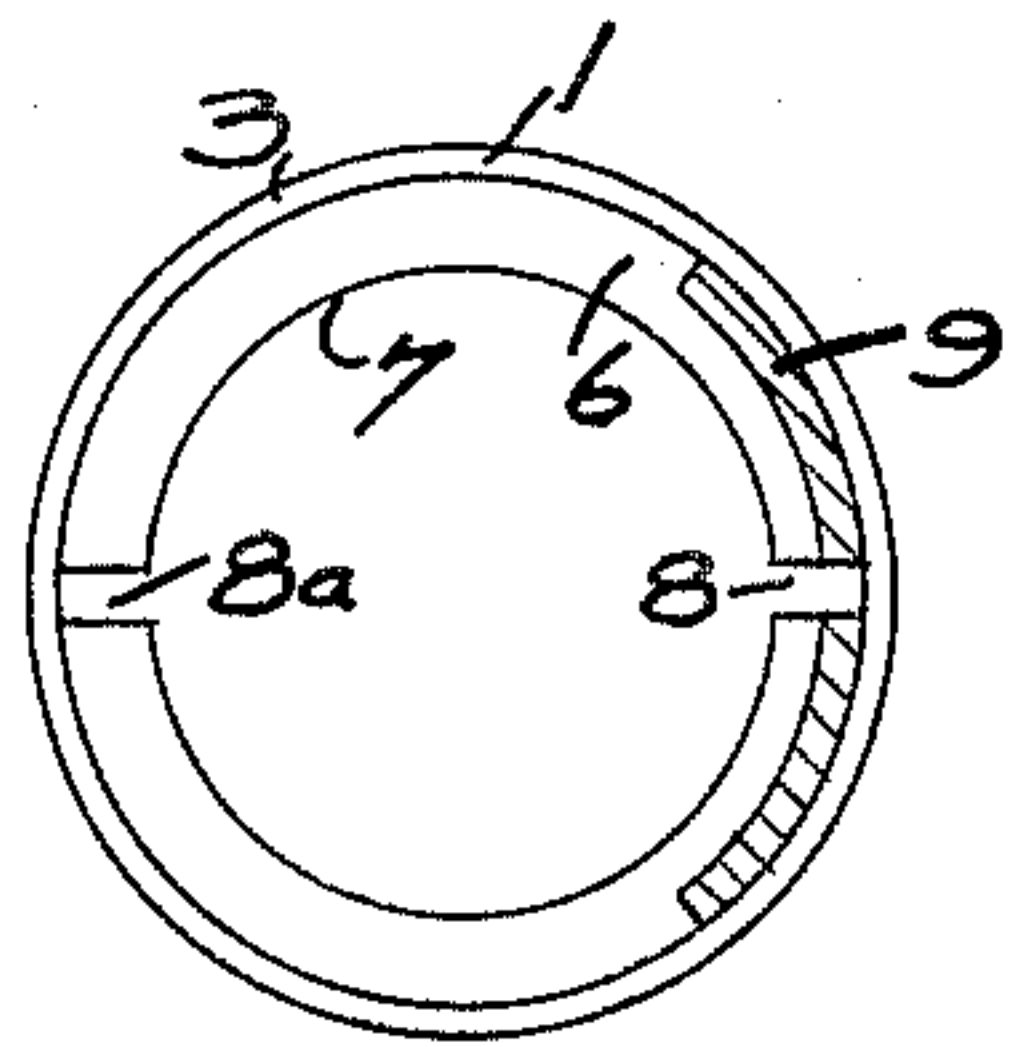
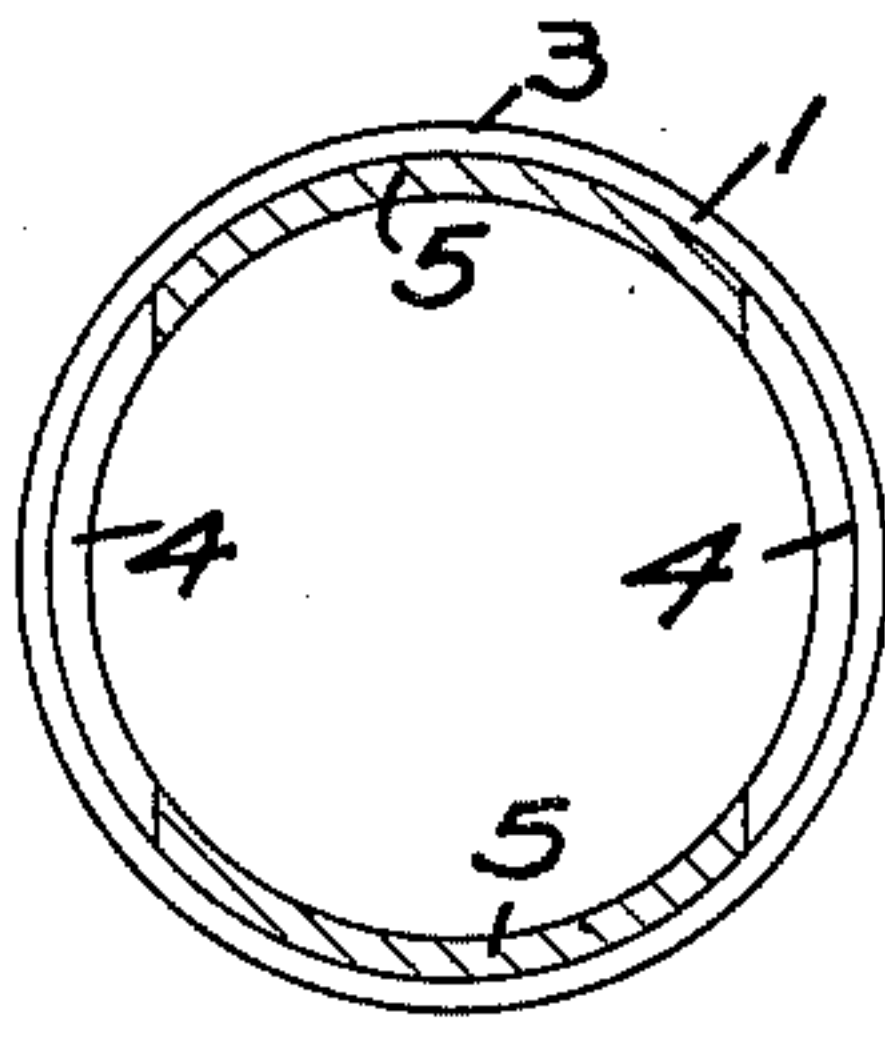
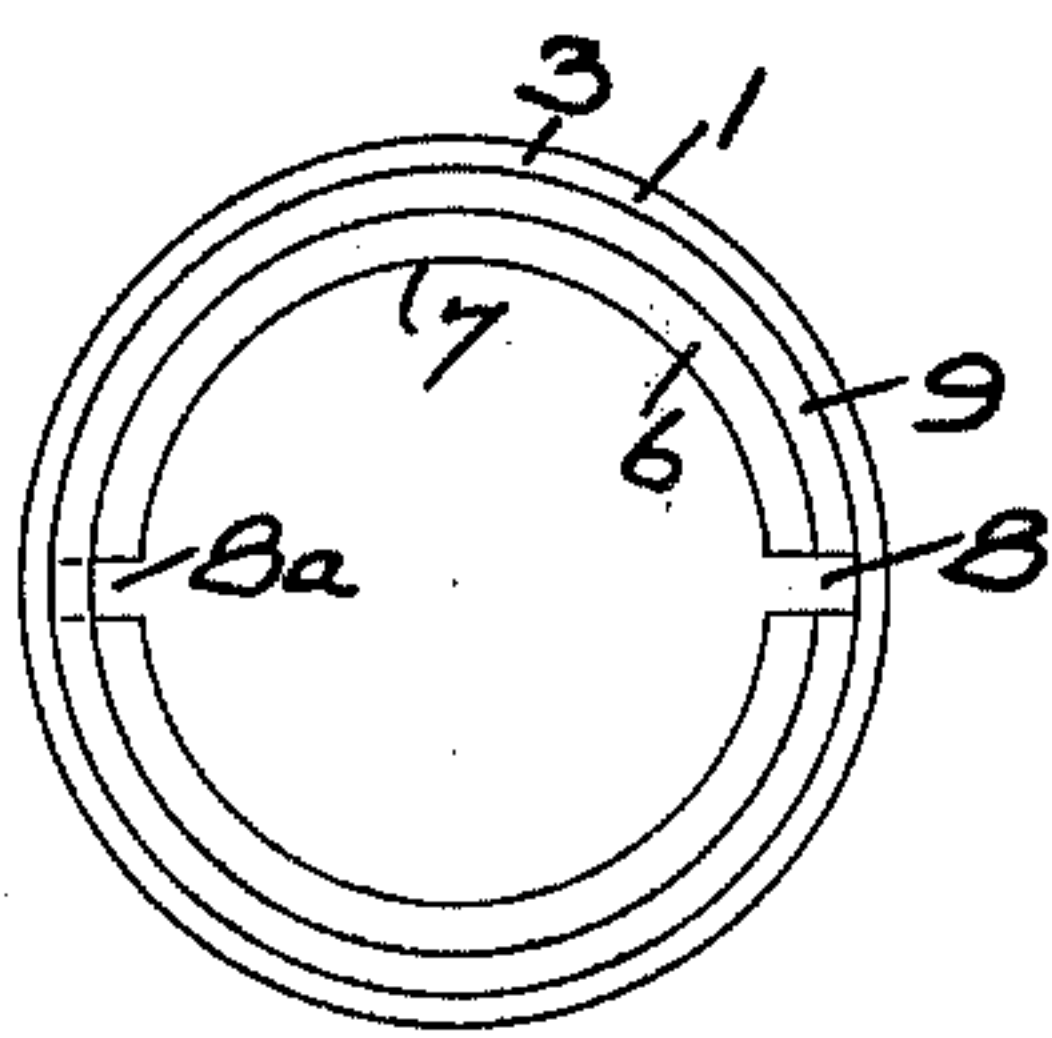
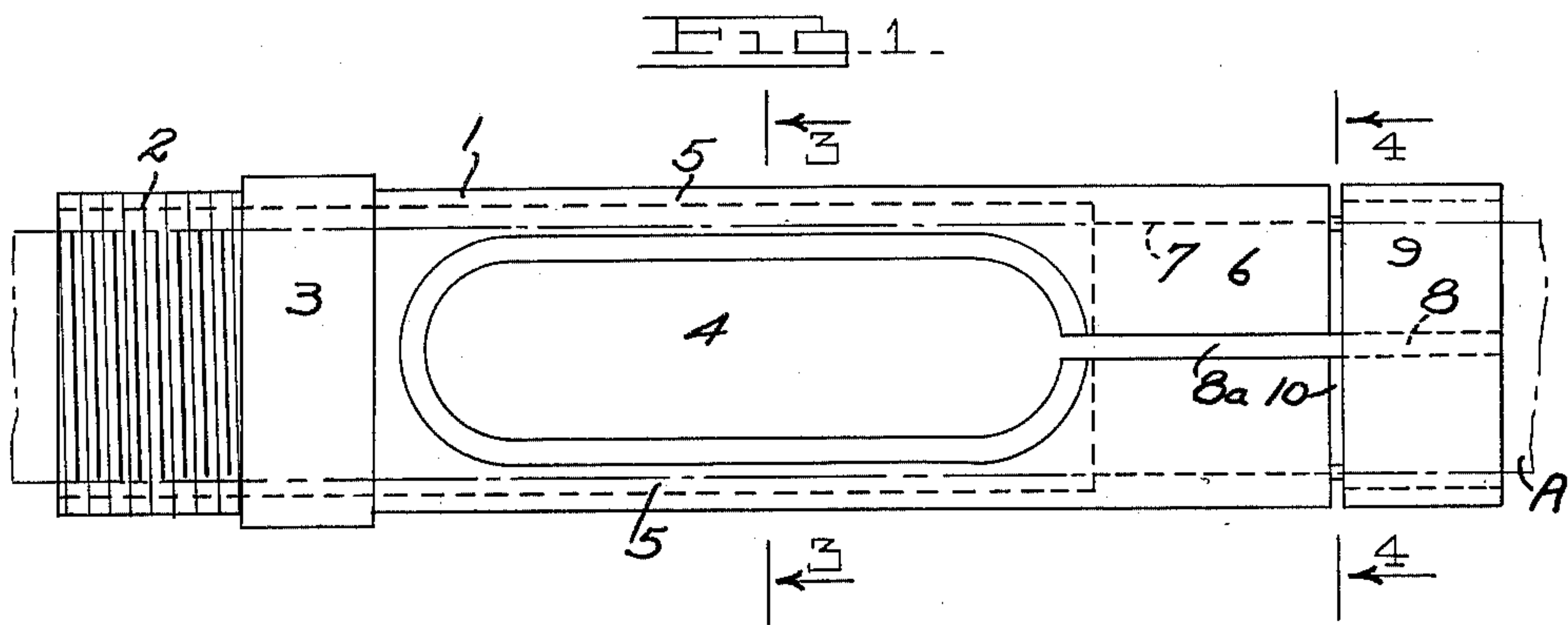
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I. H. SHEFFER

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FEED COLLET

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INVENTOR.

BY *Irving H. Sheffer*  
*Charles W. Baldwin*  
ATTORNEY.



## UNITED STATES PATENT OFFICE

IRVING H. SHEFFER, OF DETROIT, MICHIGAN

## FEED COLLET

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My invention relates to improvements in feed collets used in automatic screw machines and the like for moving axially stock not otherwise held.

5 It is an object of the invention to provide a feed collet having a stock gripping portion which is split longitudinally on opposite sides, and to provide means for exerting circumferential spring tension substantially  
10 uniformly from both extremities of the gripping portion to the end that the said gripping portion exerts a grip of uniform intensity throughout the length of that portion of the stock which extends through it.

15 Another object of the invention is to provide a feed collet wherein the whole of the stock gripping portion varies uniformly in size around its whole bore as the gripping walls are sprung outwardly so that the frictional hold on all faces of multi-sided stock is  
20 equally reduced. In this manner I aim to provide a feed collet by which multi-sided stock may be as successfully handled as round stock; as it is found that with many types  
25 of feed collets wherein a single longitudinal slot extends through the gripping portion that when the latter is sprung outwardly it expands from the slot in such a manner that the frictional hold on some (and in certain  
30 cases the majority) of the faces of the stock is not materially lessened.

A further object of the invention is to provide a feed collet of substantially uniform diameter throughout its entire length so that  
35 stock of the largest possible size may be successfully fed therethrough.

With these and other objects and advantages in view which will become apparent as the specification proceeds, the invention  
40 is hereinafter more fully described with the aid of the accompanying drawing, in which:

Figure 1 illustrates a side view of the feed collet, and

45 Figure 2 is an end view thereof.

Figures 3 and 4 are sections on the lines 3—3 and 4—4 respectively of Figure 1.

Figure 5 shows an end view of a modified form of feed collet intended for feeding  
50 hexagonal stock.

Referring to the drawing, 1 designates

the collet which consists of a single piece of material, preferably seamless tubing, one end of which is provided with means, in the present instance an external screw thread 2, for attaching it to an operating member—  
55 not shown. In the present instance a collar 3 of slightly larger diameter is formed at the inner end of the threaded portion 2, though this may be dispensed with if desired.

Intermediately of its length the collet is  
60 pierced by two longitudinally elongated apertures 4, thereby forming two longitudinal supporting arms 5 connecting the rear with the front portion of the collet. At the front extremities of the arms 5 is a gripping portion  
65 6, the bore 7, or 7a, of which engages the periphery of stock, indicated at A, to be moved axially by the collet. Extending longitudinally through the gripping portion 6 from the apertures 4 are opposed longitudinal  
70 slots 8 and 8a, the former of which extends also through the front collar 9 which is integral with the collet and forms the front extremity thereof. The front collar 9 partly  
75 is separated from the gripping portion 6 by a segmental slot 10 which preferably extends through more than 90°. In this segmental slot the front extremity of the longitudinal slot 8a terminates.

The bore of the collet throughout its entire  
80 length is substantially uniform except through the gripping portion where it is of reduced size, and may be either circular as shown at 7 in Figures 2 and 4, or multi-sided  
85 as shown at 7a in Figure 5.

Both the front collar 9 and the supporting arms 5 are hardened to a spring temper and the gripping portion 6 is made quite hard. Thus when outward pressure is exerted on the bore 7, or 7a, the spring temper of the said  
90 collar and arms permits the gripping portion 6 to expand substantially equally throughout its length, and the opposed longitudinal slots 8 and 8a tend to insure substantially uniform expansion around the whole of the bore 7, or  
95 7a. Thus this arrangement insures substantially uniform circumferential spring tension throughout the whole of the bore 7, or 7a.

From the foregoing it is believed that it will be readily seen that I have devised a  
100



feed collet, due in part to the arrangement of the opposed longitudinal slots 8 and 8a which extend throughout the whole of the gripping portions 6, by which uniform circumferential spring tension is maintained at all times on all faces of multi-sided stock. Again the arrangement of the front collar 9, which forms a spring, insures longer life to the collet without increasing the diameter of that portion of the device, since any increase in diameter of any portion of the collet necessitates a corresponding reduction in the size of stock that may be fed through the spindle as the bore of the latter fixes the maximum diameter of all parts of a collet that may be operated therein.

The operation of the collet is as follows: A bar of stock A extends through it and is held by the bore 7, or 7a, of the gripping portion 6. This bar is, unless otherwise held, moved axially with the collet; and when the bar is otherwise held the resiliency of the arms 5 and collar 9 permit the gripping portion 6 to be sufficiently expanded for the collet to move and the bar to remain stationary.

While in the foregoing the preferred form of construction of the feed collet has been described and shown it is understood that the construction is susceptible to such alterations and modifications as fall within the scope of the appended claims.

What I claim is:

1. A feed collet comprising a single tubular member one extremity of which is provided with means for attachment to an operating member, the intermediate body portion being resilient and having longitudinal apertures formed therethrough, a gripping portion adjacent one extremity of said intermediate portion, the bore of the gripping portion being smaller than that of the remainder of the tubular member, said gripping portion being longitudinally slotted, and a front spring collar partly severed by a transverse slot from said gripping portion but integral therewith, said spring collar being adapted to contract the front part of the gripping portion.

2. A feed collet comprising a single tubular member one extremity of which is circumferentially closed and provided with means for attachment to an operating member, the intermediate body portion being resilient and having longitudinal apertures formed therethrough, a gripping portion adjacent one extremity of said intermediate portion and having opposed slots formed longitudinally therethrough, the bore of the gripping portion being smaller than that of the remainder of the tubular member and being formed to correspond substantially with the contour of the work to be fed thereby, and a unitary front split spring collar partly severed from said gripping portion by a circumferential slot adapted to contract the bore of said gripping portion.

3. A feed collet comprising a single tubular member of substantially uniform diameter throughout its entire length, one extremity being provided with means for attachment to an operating member, the intermediate body portion being pierced by longitudinal apertures, a gripping portion in front of and adjacent the apertured intermediate portion, a front collar in front of said gripping portion and partly separated therefrom by a circumferential slot, said gripping portion having longitudinal slots formed therethrough extending forwardly from said apertures, one of said longitudinal slots terminating in said circumferential slot, and the other longitudinal slot extending forwardly through said front collar, and the bore of the gripping portion being of such form as to grip the periphery of the work to be fed by the collet and being smaller than that of the remainder of the collet.

4. A feed collet comprising a single tubular member, means at one of its extremities for engaging an operating member, a resilient split ring formed at the other extremity of said collet and partly severed from the adjacent portion of said member by a transverse slot, the intermediate portion of said member having inwardly projecting gripping portions and being longitudinally slotted.

IRVING H. SHEFFER.