

C. J. FANCHER AND R. A. JOHNSON.
 DRAWN STEEL FEED COLLET AND METHOD OF MAKING THE SAME.
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1,433,881.

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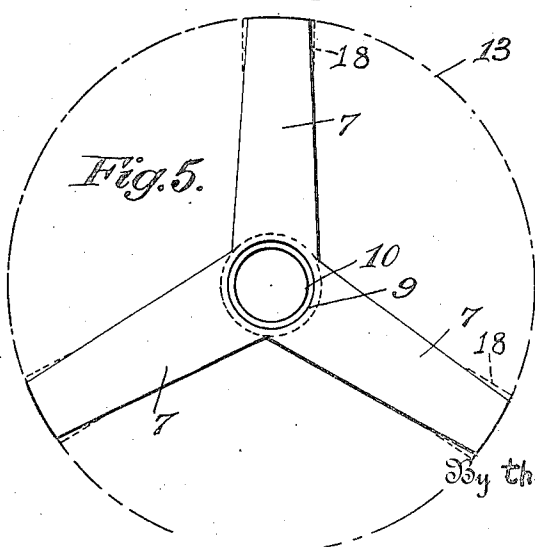
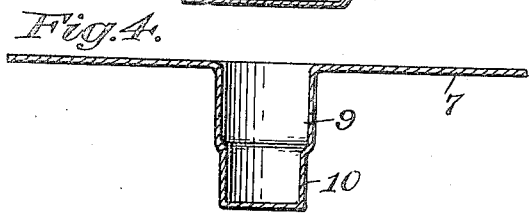
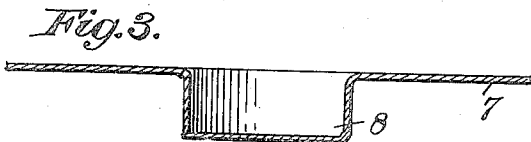
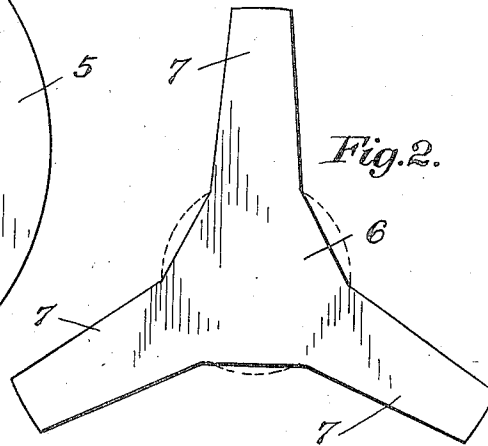
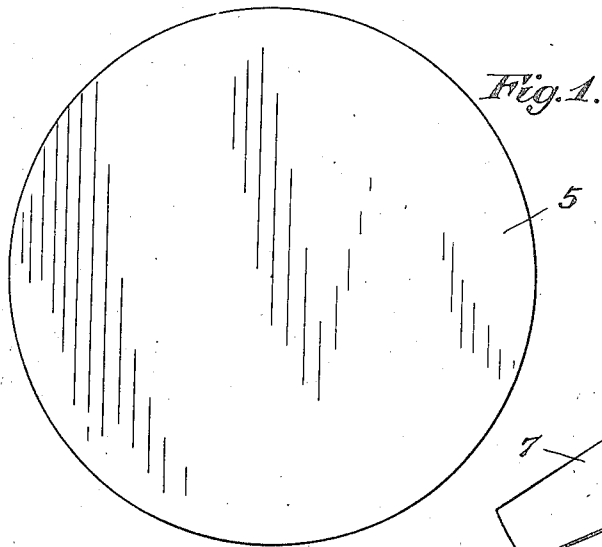


Fig. 6.

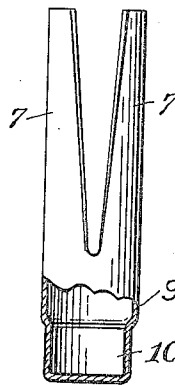
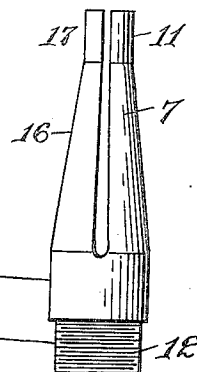


Fig. 7.



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UNITED STATES PATENT OFFICE.

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DRAWN-STEEL FEED COLLET AND METHOD OF MAKING THE SAME.

Application filed December 18, 1920. Serial No. 431,532.

To all whom it may concern:

Be it known that we, CHARLES J. FANCHER and ROBERT A. JOHNSON, both citizens of the United States, residing at Windsor, in the county of Windsor and State of Vermont, have invented certain new and useful Improvements in Drawn-Steel Feed Collets and Methods of Making the Same, of which the following is a specification.

This invention relates to feed collets for metal working machines, bar forming machines, and the like, and to the method of making the same, the object thereof being to provide a feed collet which can be readily and economically constructed in a very simple manner by drawing the same from a sheet metal blank, and which can be used with the same efficiently and effectiveness as the more expensively formed feed collets heretofore manufactured from solid stock.

Prior to our invention in the making of feed collets from sheet metal, it has been the practice to form feed collets of this general type from solid stock by boring out or drilling the same, and subsequently slotting the stock and forming the gripping portions. This process has been found in practice to be both expensive and wasteful, and furthermore, the feed collets formed thereby are neither as strong nor as durable as those manufactured in accordance with our improved methods.

In the accompanying drawings forming a part of this specification, and wherein like reference characters indicate similar parts throughout the various views, Figs. 1 and 2 are views illustrating metal blanks which may be used for making feed collets in accordance with our improved method; Figs. 3 and 4 and 5 illustrate successive steps in the operation; Fig. 6 is a view illustrating an unformed feed collet; and Fig. 7 illustrates a completely formed feed collet.

The present improved feed collet is constructed from a sheet metal blank cut either in the form shown in Fig. 1 or in the form shown in Fig. 2. When a blank of either form is used, it is first drawn into the shape shown in Fig. 3 comprising a cup shaped or offset portion 8, and a flanged portion 7 either of disk form if the blank in Fig. 1 is used or arm-formed if the blank in Fig. 2 is used. Accordingly therefore, Fig. 3 illustrates the first drawing step, which of course

may be carried out by suitable mechanism provided for that purpose.

The incomplected blank shown in Fig. 3 is then further drawn into the shape shown in Fig. 4, the portions 9 and 10 forming the body of the collet, the portion 10 being preferably provided for the reception of threads hereinafter referred to, and forming one end of the collet adapted for attachment to the feed member of the lathe or metal working machine.

When a blank similar to that shown in Fig. 1 is used, the next step in the formation of this improved collet, after the completion of the step illustrated in Fig. 4, is to cut away the disk 13 shown in dotted lines in Fig. 5 so as to provide a plurality of finger pieces 7, three being provided in the present case by way of illustration. These finger pieces 7 in some instances may, if desired, have parallel side edges as illustrated in dotted lines at 18, or may be tapered or otherwise cut as shown in full lines in Fig. 7 to form the elongated gripping portion 17 hereinafter described.

Thereupon the blank is further subjected to pressure by suitable mechanism, so as to draw the finger pieces 7 into the position shown in Fig. 6, thereby to cause them to extend substantially in the direction of the longitudinal axis of the collet.

When the blank 6, such as shown in Fig. 2, is used, after the body portion 9 and the shoulder portion 10 are formed as illustrated in Fig. 4, the finger pieces 7 are then drawn or bent into the position shown in Fig. 6 wherein they project or extend substantially in the direction of the axis of the collet. At the completion of this operation, the feed collet is completely drawn, and it is then placed in a suitable forming or shaping machine, such as for instance, one similar to that shown and described in our contemporaneously pending application Serial No. 429,301 filed December 9, 1920. Thus through the operation of suitable instrumentalities the finger pieces are formed into substantially the shape shown in Fig. 7, wherein they are preferably given a tapered formation both exteriorly and interiorly as illustrated at 16, thereby to have substantially a conical shape, and terminating in a gripping or otherwise shaped elongated gripping portion 17, forming an extended

gripping surface of less diameter than that of the body 9 and having a bore of any desired shape to conform to the size and shape of the work or stock to be successively gripped and fed.

Either before or after the fingers are formed and shaped, in the manner shown in Fig. 7, the end of the shoulder portion 10 is cut off thereby to provide a lengthwise extending bore through the collet, and the shouldered end of the collet is threaded as at 12 whereupon the collet is completely formed and is in readiness for use.

As will be understood, the fingers 7 are highly resilient and the terminal portions 11, through which extend the axial bore corresponding substantially in size and shape to the work or stock to be successively gripped and fed, provide inner faces or surfaces adapted to grip resiliently the work. Of course the fingers may be varied as desired in the manner of their construction and shape, so as to conform to the various sizes of the work or bars of stock used, and to the shape in cross-section of such bars, rods or stock, i. e., round, hexagonal, square, etc.

Although we have described a preferred embodiment of our invention, it is to be understood that we do not limit ourselves to the exact details of construction shown and described, but may make such changes, alterations, or additions as will come within the scope of the appended claims.

We claim as our invention:

1. A feed collet adapted for attachment to the feed member of a machine and comprising a sheet metal blank drawn into a tubular body having a bore therethrough and provided with a gripping portion adapted to grip the work.

2. A feed collet adapted for attachment to the feed member of a machine and comprising a sheet metal blank drawn by successive steps into a tubular body having a bore therethrough and provided with gripping fingers adapted to grip the work.

3. A feed collet adapted for attachment to the feed member of a machine and comprising a sheet metal blank drawn into a tubular body having a bore therethrough and provided with gripping fingers adapted to grip the work, said body having means effective to secure it to the feed member.

4. A feed collet adapted for attachment to a machine and comprising a sheet metal blank drawn into a body portion provided with a plurality of resilient finger portions.

5. A feed collet adapted for attachment to a machine and comprising a sheet metal blank drawn into a body portion provided with a plurality of resilient finger portions terminating in an elongated gripping surface.

6. A feed collet adapted for attachment

to a machine and comprising a sheet metal blank drawn into a body portion provided with a plurality of resilient finger portions terminating in an elongated gripping surface having parallel side edges, said body portion having a threaded end.

7. A feed collet adapted for attachment to a machine and comprising a sheet metal blank drawn into a body portion provided with a plurality of resilient finger portions terminating in an elongated gripping surface, said body portion having a threaded end terminating in a shoulder.

8. The method of making a feed collet, which consists in first cutting a blank to provide a body portion and finger pieces, then drawing said blank to form a collet having a body portion and a plurality of finger pieces.

9. The process of making a feed collet, which consists in first forming a blank, then drawing said blank to form a body portion having different diameters, then further drawing said blank to form finger pieces extending in the direction of the axis of the collet, and then shaping said finger pieces.

10. The method of making a feed collet, which consists in drawing the same from a sheet metal blank into a tubular body having a gripping portion adapted to grip the work.

11. The method of making a feed collet, which consists in drawing the same by successive steps from a sheet metal blank into a tubular body having a gripping portion adapted to grip the work.

12. The method of making a feed collet, which consists in providing a metal blank, drawing a portion of the same by pressure into an offset substantially cylindrical portion, and forming the remaining portion thereof into gripping fingers.

13. The method of making a feed collet, which consists in providing a sheet metal blank, drawing a portion of the same by pressure into an offset substantially cylindrical portion, providing such offset portion with means effective to secure it to the feed member, and forming the remaining portion thereof into gripping fingers.

14. The method of making a feed collet, which consists in providing a sheet metal blank, drawing a portion of the same by pressure into an offset substantially cylindrical portion, then drawing said offset portion into a plurality of different sized substantially cylindrical portions, and forming and shaping the remaining portion into projecting fingers terminating in gripping surfaces.

Signed at Windsor, Vermont, this 16th day of December, 1920.

CHARLES J. FANCHER.
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