

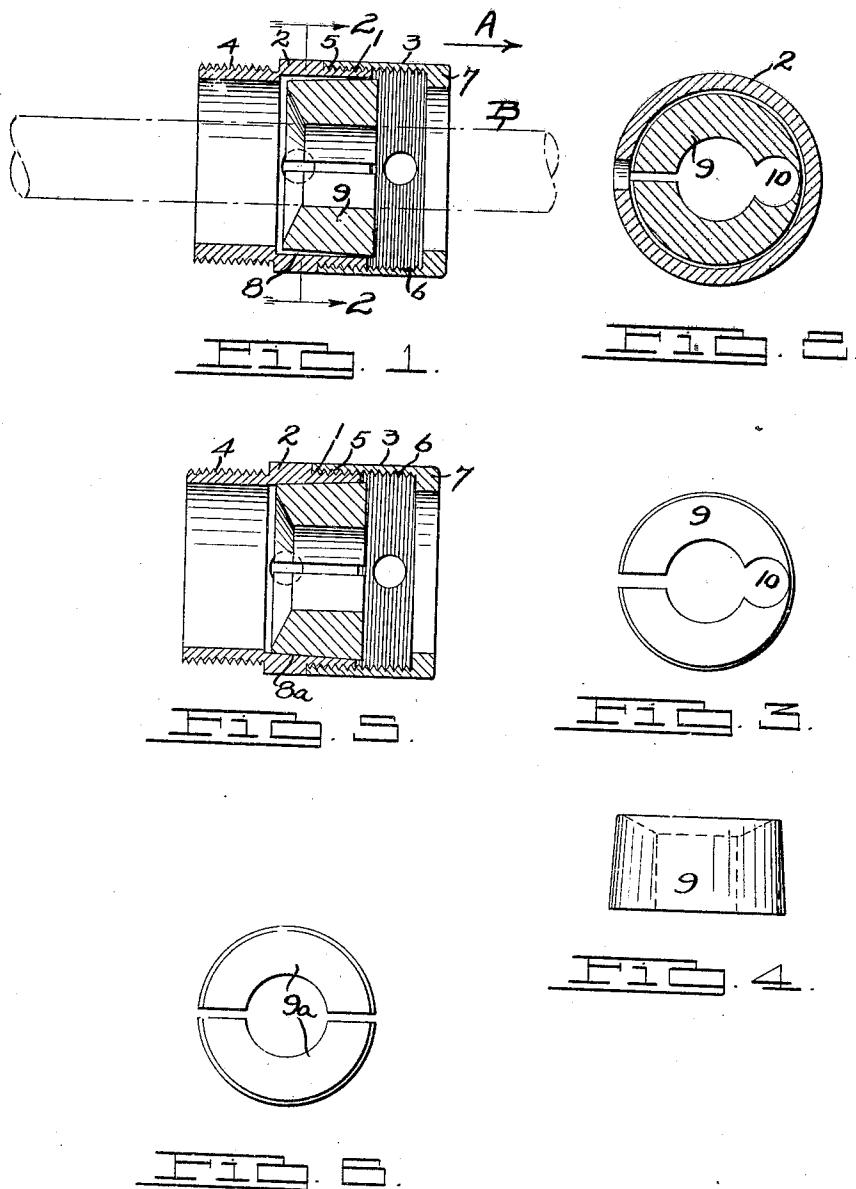
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FEED COLLET

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## UNITED STATES PATENT OFFICE

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## FEED COLLET

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This invention relates to improvements in feed collets or pushers intended primarily for use in automatic machines having hollow spindles through which bars of stock extend and are intermittently fed forward. These feed collets or pushers are employed from time to time to move the stock forward when not otherwise held, so that another portion thereof projects through the hollow spindle. Heretofore it has been customary to provide feed collets with portions sufficiently resilient to grip the stock and move it longitudinally. It is found, however, that the spring tension of the resilient portions rapidly diminishes until the collet will no longer perform its function.

This invention aims to provide a feed collet or pusher wherein a bushing, adapted to encircle the stock, is slidably arranged in a housing so that when the latter is moved in the direction in which the stock is to be moved a portion of the bore of the housing of reduced diameter contact the periphery of the bushing and causes the bore of the latter to contract and grip the stock sufficiently to move it with the housing and bushing.

Another object of the invention is to provide a feed collet wherein the bore of the housing is of larger size towards its opposite end so that when the collet is moved in the direction opposite to that in which the stock is fed the bushing is free to assume its normal size when it slides freely over the stock.

A further object of the invention is to provide a bushing for such a feed collet that is simple and cheap to manufacture, and which, while flexible enough to be easily caused to engage the stock by peripheral pressure, will release the latter and reassume its normal size and shape as soon as that peripheral pressure ceases, so that no great resilience is required for its successful operation.

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

Figure 1 illustrates a sectional view of the invention with a piece of stock extending through it.

Figure 2 is a section on the line 2—2 of Figure 1.

Figures 3 and 4 are end and side views of the bushing.

Referring to the drawings, 1 designates a housing consisting of a sleeve 2 and a cap 3. One end 4 of the sleeve 2 is usually externally threaded for attachment to an operating member therefor. The opposite end of the sleeve 2 is also externally threaded at 5 to cooperate with internal thread 6 in the bore of the cap 3. Thus that portion of the bore 8, of the sleeve 2 is of lesser diameter than the bore of the cap 3 which fits over it. Integral with the outer end of the cap 3 is an inturned annular flange 7.

Within the housing 1 a bushing 9 is arranged. This bushing is usually split as shown in Figures 2 and 3 and in that case is usually cut radially on its inner side diametrically opposite the split portion as shown at 10 to render it more readily flexible. The periphery of the bushing is generally longitudinally tapered. The bore 8 of the sleeve is of uniform diameter throughout its length as shown in Figure 1. The inturned flange 7 holds the bushing 9 against disengagement from the housing.

When the housing is moved in the direction of the arrow A, Figure 1, it advances relative to the bushing 9 until the tapered periphery of the latter enters the sleeve bore 8 far enough for the bushing to be pressed inwardly sufficiently to engage the work B. Then the housing and bushing move together and carry the work with it. When the housing is moved in the opposite direction the bushing 9 is moved by the flange 7, and as the bore of the cap 3 is of larger diameter, and also as the small end only of the bushing 9 is then within the sleeve bore 8 the said bushing has re-assumed its normal diameter and is therefore free to move with the housing while the work remains stationary.

From the foregoing it will be seen that the function of the bushing 9 is such that only sufficient flexibility is required to permit it to be flexed to grip the work by peripheral pressure exerted thereon. The bushings may therefore be used successfully for an in-

definite period; may be renewed at a minimum of cost due to the simplicity of their construction; and can be quickly inserted by merely removing the cap 3 from the sleeve 2.

5 While in the foregoing the preferred embodiments of the invention have been described and shown it is understood that such further alterations and modifications may be made in the construction as fall within the scope of the appended claim.

10 What I claim as my invention and desire to secure by Letters Patent is:

15 A feed collet comprising a tubular housing having a removable end cap, the inner peripheral wall of the housing and cap being formed to provide a bore having three progressively stepped portions of increasing diameter, a split externally tapered bushing arranged to slidably fit in the intermediate 20 bore portion, the bore of said housing and said bushing arranged to axially receive a bar of stock, whereby to permit the stock to move axially in one direction relative to the housing and bushing to make a narrow line contact with said bushing and compress the latter into frictional engagement therewith when the stock is moved in the opposite direction, and means on said cap for movably maintaining said bushing within the 25 housing.

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