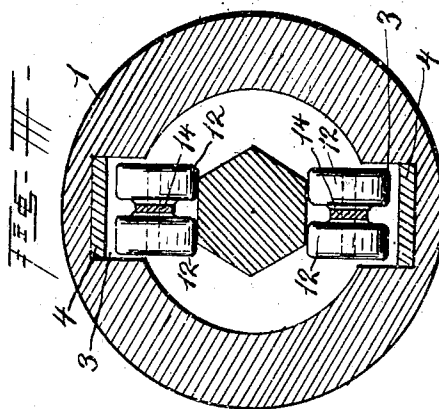
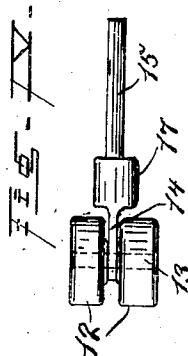


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by *Inventor,*  
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# UNITED STATES PATENT OFFICE.

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## CLUTCH FOR FEEDING METAL RODS OR BARS.

No. 898,431.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, LATHAM H. BRIGHTMAN, a citizen of the United States, resident of Shelby, county of Richland, and State of Ohio, have invented certain new and useful Improvements in Clutches for Feeding Metal Rods or Bars, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle so as to distinguish it from other inventions.

The annexed drawings and the following description set forth in detail, one mechanical form embodying the invention; such detail construction being but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings Figure I represents an axial section of my improved feed-clutch; Fig. II, an end view of the same; Fig. III, a transverse section on the line III—III in Fig. I, and Fig. IV, a top view of a pair of clutch-rollers and the shank supporting the same.

In feed-clutches for intermittently feeding forward bar or rod stock, such as in automatic turning and boring machines or so-called automatic screw-machines and kindred machines, it is of importance that the stock be positively and firmly grasped by the clutch and, at the same time, it is of importance that such firm grasp shall not dent or otherwise mar the surface of the stock. While serrated or otherwise sharpened jaws will afford a firm hold upon the stock, such serrations or rough or sharp projections upon the jaws will mark and mar the surface of the stock, and it is for the purpose of avoiding such marking and marring that I have devised the clutch which constitutes my present invention and provided the same with rolling jaws which will not mar the stock and will at the same time clamp the stock tightly and increase its hold as the stock is fed forward by the reciprocating feed-clutch.

The feed-clutch has a sleeve, 1, which is connected to or provided with means for longitudinally-reciprocating it in its relation to the machine into which it feeds the stock, and which means do not need illustration as they form no part of the present invention and may be of varying character according to the character of the machine in connection with which the feed-clutch is used. The sleeve has an axial bore, 2, throughout its entire length,

of a diameter slightly exceeding the diameter of the largest bar which the clutch is intended to feed. Two diametrically-opposite, outwardly-diverging inclined grooves, 3, extend from near the middle of the axial bore of the sleeve to the forward end of the same, and have wear-plates, 4, secured in their bottoms. An annular guide-disk, 5, is secured at the rear end of the sleeve and has a central opening, 6, which corresponds in shape and size to the cross-section of the bar to be fed through, so as to guide such bar and support the same axially-alined through the clutch. A guide-disk, 7, is secured over the forward end of the sleeve and has a central opening, 8, similar to the opening in the rear disk and corresponding in shape and size to the cross-section of the bar so as to guide the latter in conjunction with the rear guide-disk. The outer edges of the central openings of the two disks are preferably beveled. Openings, 9, are formed through the front disk to register with the ends of the inclined grooves, and guide-brackets or stirrups, 10, are secured over the outer ends of such openings and have openings, 11, in their middles which register with the openings in the disk.

A pair of rollers, 12, are supported to travel in the inclined grooves and are journaled upon pins, 13, passing through an eye, 14, between the rollers of each pair, and having shanks, 15, which slide in the openings in the disk and stirrups and have springs, 16, coiled around them and bearing against the stirrups and shoulders, 17, upon the shanks, so that said springs serve to force the rollers inward and up the inclines of the grooves, being thereby forced inward, into the bore of the clutch-sleeve and against the bar within the same, thereby clamping such bar.

The clutch is adjusted for different shapes and sizes of bars by securing guide-disks at the ends of the sleeve having central openings of the cross-sectional shape and size of the bar to be fed. When the bar is of comparatively small diameter, rollers of correspondingly greater diameter are employed, and the openings in the front-disk are correspondingly arranged in their relation to the central opening of the disk.

In practice, the bar is inserted through the opening in the rear disk and is pushed through the sleeve and through the opening in the front-disk. As the rollers move freely towards the forward end of the sleeve when the bar is pushed forward or the sleeve is

moved rearward, traveling outward upon the  
 inclined bottoms of the grooves, there is no  
 clamping or clutching of the bar during such  
 relative movement. As soon, however, as  
 5 this movement of carrying the rollers for-  
 ward ceases, the springs upon the shanks of  
 the rollers force the latter inward to ride upon  
 the inclined bottoms of the grooves and to be  
 thus forced towards the axis of the clutch  
 10 and against the bar so as to clamp the same.  
 Forward movement of the sleeve or rear-  
 ward movement of the bar will draw the  
 rollers further inward into the inclined  
 grooves and will cause such rollers to there-  
 15 by increase their hold upon the bar. It is  
 thus evident that the greater the resistance  
 to the forward feed of the bar, the greater the  
 hold will be of the clutch-rollers upon the bar.  
 The rollers will permit free rearward move-  
 20 ment of the clutch to again take hold of the  
 bar and feed the same forward on its forward  
 stroke, and the rollers will also firmly hold  
 the bar without marring the surface of the  
 same.  
 25 Other modes of applying the principle of  
 my invention may be employed for the mode  
 herein explained. Change may therefore be  
 made as regards the mechanism thus dis-  
 closed, provided the principles of construc-  
 30 tion set forth respectively in the following  
 claims are employed.

I therefore particularly point out and dis-  
 tinctly claim as my invention:—

35 1. In a feed clutch, the combination of a  
 clutch-sleeve formed with outwardly-diver-  
 ging inclined grooves in its bore, rollers sup-  
 ported to travel in such grooves, longitudi-  
 nally-movable individual supports upon  
 which the rollers are separately journaled,

guides for said supports, and springs, each 40  
 bearing against a support to force the latter  
 and the roller towards the shallow end of its  
 groove.

2. In a feed-clutch, the combination of a  
 clutch-sleeve formed with longitudinal out- 45  
 wardly-diverging inclined grooves in its bore,  
 a disk secured to the end of the sleeve to  
 cover the wide ends of the grooves and  
 formed with a central opening for the stock  
 and with openings registering with the ends 50  
 of the grooves, rollers traveling in the grooves  
 and journaled to shanks guided in the open-  
 ings of the disk, and springs acting against  
 the shanks to force the rollers inward in the  
 grooves. 55

3. In a feed-clutch, the combination of a  
 clutch-sleeve 1 having an axial bore 2 formed  
 with inclined grooves 3 having wear-plates 4,  
 a guide-disk 5 secured at the rear end of the  
 sleeve and formed with a central opening 6, a 60  
 guide-disk 7 secured to the front end of the  
 sleeve and formed with a central guide-open-  
 ing 8 and with openings 9 registering with  
 the outer ends of the inclined grooves, guide-  
 stirrups 10 secured over the outer ends of the 65  
 openings 9, shanks 15 guided in the openings  
 of the disk and stirrups, springs 16 upon said  
 shanks and bearing against the same and the  
 stirrups, and rollers 12 journaled upon pins  
 13 supported in the shanks and traveling in 70  
 the inclined grooves.

In testimony that I claim the foregoing to  
 be my invention I have hereunto set my hand  
 this 20th day of January A. D. 1906.

LATHAM H. BRIGHTMAN.

Witnesses:

M. A. CALHOUN,  
 M. CLINE.