

C. F. CODA.
 REVOLUBLE WORK FEEDING CHUCK.
 APPLICATION FILED JULY 31, 1911.

1,030,283.

Patented June 25, 1912.

2 SHEETS—SHEET 1.

Fig. 3.

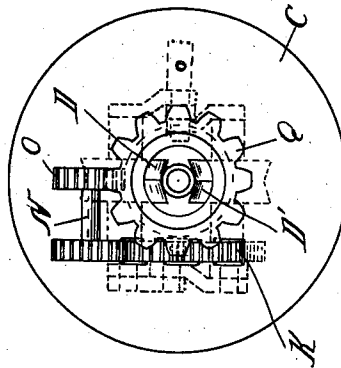
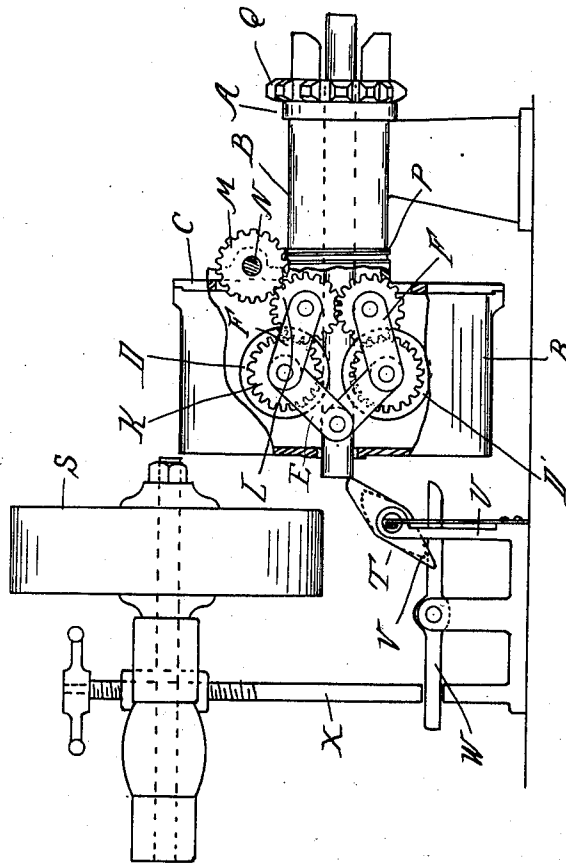


Fig. 1.



Witnesses
 W. H. Ford
 James P. Ruff

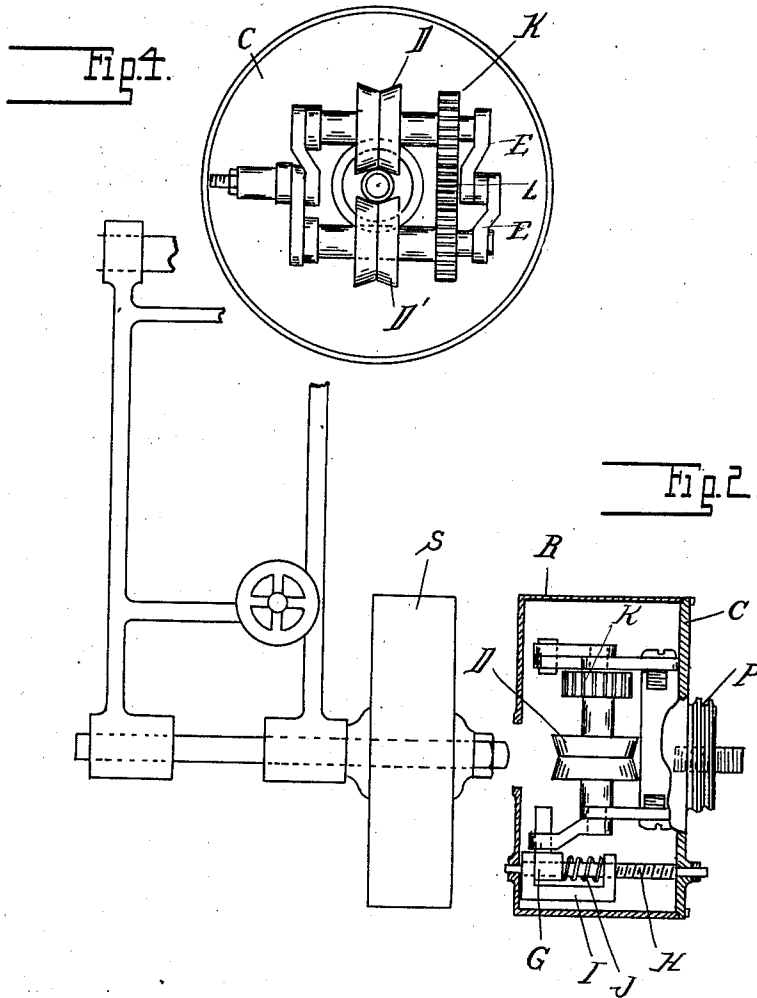
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 Attys

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UNITED STATES PATENT OFFICE.

CHRISTOPHER F. CODA, OF DETROIT, MICHIGAN.

REVOLUBLE WORK-FEEDING CHUCK.

1,030,283.

Specification of Letters Patent.

Patented June 25, 1912.

Application filed July 31, 1911. Serial No. 641,559.

To all whom it may concern:

Be it known that I, CHRISTOPHER F. CODA, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Revoluble Work-Feeding Chucks, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to revoluble chucks, and has for its object the obtaining of a construction in which the work revolved by the chuck is positively fed forward during its rotation.

It is a further object to obtain a construction in which the chuck is adjustable to various sizes of work, and is self-centering, and the invention consists in various features of construction as hereinafter set forth.

In the drawings,—Figure 1 is an elevation of the chuck shown in connection with a grinding wheel for polishing the surface of the work; Fig. 2 is a plan view of Fig. 1; Fig. 3 is an end elevation; and Fig. 4 is an opposite end view, with the casing removed.

A is a rotary hollow mandrel journaled in a suitable bearing B. C is a head secured to said mandrel, D D' are work-feeding grooved rolls mounted upon the head C and radially adjustable toward or from the axis of said mandrel. These rolls are preferably carried by toggle levers E and links F, which latter are pivotally secured to bearings on the head C. The point of pivotal connection between the toggle levers E has secured thereto a slide G, which engages a post H rotatably secured to the head C. This post has also mounted thereon an adjustable abutment member I, between which and the bearing G a spring J is interposed and preferably sleeved about the post. The abutment member I preferably has a threaded engagement with the post H, so that by rotating said post the position of the abutment may be changed, which will vary the angle of the toggle levers.

With the construction as thus far described, it will be understood that the distance that the rolls D D' are from the axis

of the hollow mandrel depends upon the angular adjustment of the links of the toggle lever, which in turn depend upon the adjustment of the abutment member I. Thus, by rotating the post H to draw the abutment member I inward or toward the head, the toggle levers E will be spread, moving the rolls D D' away from the axis of the mandrel. The reverse adjustment will draw the rolls nearer to the axis of the mandrel, and the range is preferably such as to permit any adjustment between actual contact of the rolls with each other and the outer limit desired. The rolls are, however, free to move outward independently of any adjustment of the abutment member I by compressing the springs J, and thus a yielding pressure is exerted by the rolls upon the work.

To positively drive the rolls, a gear train is arranged, which as shown comprises the gear wheels K upon each of the roll spindles.

L are gear wheels concentric with the pivots of the links F which intermesh with each other and respectively with the gear wheels K.

M is a gear wheel intermeshing with one of the gear wheels L and secured to a rotatable shaft N arranged in rear of the head C and having thereon the worm wheel O which is in engagement with a stationary worm wheel P on the bearing B. Thus, when the hollow mandrel is rotated by suitable means, such as the sprocket Q thereon, the engagement between the worm wheel O and stationary worm wheel P will cause the slow rotation of the former, which will be transmitted through the gear train to the rolls D D'. These rolls will thus be positively driven, and at the same time they are free to be adjusted toward or from the axis of the hollow mandrel, either by adjustment of the posts H to shift the abutment member I or automatically by the yielding of the springs J.

The mechanism is preferably protected by a housing R surrounding the gears and toggles and apertured in alinement with the hollow mandrel.

Where the chuck is used in a polishing

machine, as for instance in polishing pipe, a grinder or other polishing cutter, such as S, is used, and which is controlled in engagement with the work by a trip lever T. This trip lever is pivotally secured to a stationary frame U and is arranged to project into the path of the work when fed to the hollow mandrel, so that the impinging of the work against said member will cause the partial rotation thereof.

V is a cam connected to the member T, which operates upon a rockable lever W, which in turn engages an adjustable post X connected to the frame of the grinder S. The arrangement is such that the operation of the member T by the advancing work will cause the cam V to rock the lever W, thereby lifting the post X and moving the grinder S out of the path of the work until the latter has entered therebeneath. The further movement of the member T will disengage the cam V from the lever W, permitting the post X to drop and the grinder wheel to come in contact with the work, which is simultaneously rotated and fed forward until disengaged from the chuck.

What I claim as my invention is,—

1. The combination with a revoluble hollow mandrel, of a pair of feed rolls mounted thereon and movable toward and from the axis of said mandrel, a pair of toggle levers connecting said rolls, a guide parallel with the axis of said mandrel, and a slidable connection between the pivot of said toggle levers and said guide.

2. The combination with a revoluble hollow mandrel, of a pair of feed rolls mounted thereon and movable toward and from the axis, toggle links connecting said rolls, a guide parallel with the axis of said mandrel, a slide engaging said guide connected with the pivotal point of said links, and a spring for resiliently yieldably resisting the movement of said slide upon said guide.

3. The combination with a revoluble hollow mandrel, of a pair of feed rolls mounted thereon and movable toward or from the axis of the mandrel, a pair of toggle links connecting said feed rolls, a guide parallel with the axis of said mandrel, a slide engaging said guide and connected to the pivotal point of said toggle links, and an adjustable stop for limiting the movement of said slide upon said guide.

4. The combination with a revoluble hollow mandrel, of a pair of feed rolls mounted thereon and adjustable toward or from the axis thereof, a pair of toggle links connecting said feed rolls, a guide parallel to the axis of the mandrel, a slide engaging said guide and connected with the pivotal point of said toggle links, a stop for said slide adjustable on said guide, and a spring for

yieldably pressing said slide against said stop.

5. The combination with a revoluble hollow mandrel, of a pair of feed rolls mounted thereon, a pair of toggle links connecting said rolls, a guide parallel with the axis of said mandrel, a slide upon said guide engaging the pivotal connection of said toggle links, and a member adjustable on said guide provided with a stop for said slide, and an opposed abutment, and a spring engaging said abutment and yieldably pressing said slide against said stop.

6. The combination with a revoluble hollow mandrel, of a pair of feed rolls mounted thereon and adjustable toward and from the axis thereof, a pair of toggle links connecting said rolls, a revoluble post forming a guide parallel with the axis of said mandrel, a slide upon said guide, a member having a threaded engagement with said revoluble post provided with a stop for said slide, and an opposed abutment, and a spring interposed between said abutment and said slide.

7. The combination with a revoluble hollow mandrel, of a bearing in which said mandrel is journaled, a stationary worm wheel mounted on said bearing, a cooperating worm wheel mounted on said revoluble mandrel, a pair of feed rolls mounted upon said mandrel and adjustable toward and from the axis thereof, a gear train between said feed rolls and worm wheels, a pair of toggle links connecting said rolls, a guide parallel with the axis of said mandrel, a slide engaging said guide and connected with the pivotal point of said toggle links, and an adjustable stop for said slide upon said guide.

8. The combination with a revoluble hollow mandrel, of feed rolls mounted thereon, a drive train for said feed rolls, and means for yieldably pressing said feed rolls toward the axis of said mandrel, a grinding wheel adjacent to said mandrel adjustable toward the axis thereof, a trip arranged in the path of the work engaging said feed rolls, and connections between said trip and grinding wheel for withdrawing the latter to permit the entrance of the work therebeneath.

9. The combination with a revoluble hollow mandrel, of a plurality of feed rolls mounted thereon and movable toward and from the axis of said mandrel, toggle links connecting said rolls, and a member connected to the pivotal point of said toggle links and adjustable parallel with the axis of said mandrel.

10. The combination with a revoluble hollow mandrel, of a plurality of feed rolls mounted thereon and movable toward and from the axis of said mandrel, toggle links

connecting said rolls, and a member adjustable parallel with the axis of said mandrel and having a yieldable connection with the pivotal point of said toggle links.

5 11. The combination with a revoluble hollow mandrel, of a bearing in which said mandrel is journaled, a stationary worm wheel mounted on said bearing, a cooperating worm wheel mounted on said revoluble

mandrel, a pair of feed rolls mounted upon 10 said mandrel, and a gear train between said feed rolls and said worm wheel.

In testimony whereof I affix my signature in presence of two witnesses.

CHRISTOPHER F. CODA.

Witnesses:

JAMES P. BARRY,
C. B. BELKNAP.