P. STONER.

TARRY DEVICE.

APPLICATION FILED NOV. 18, 1920. RENEWED APR. 28, 1922.

1,419,082. Patented June 6, 1922.

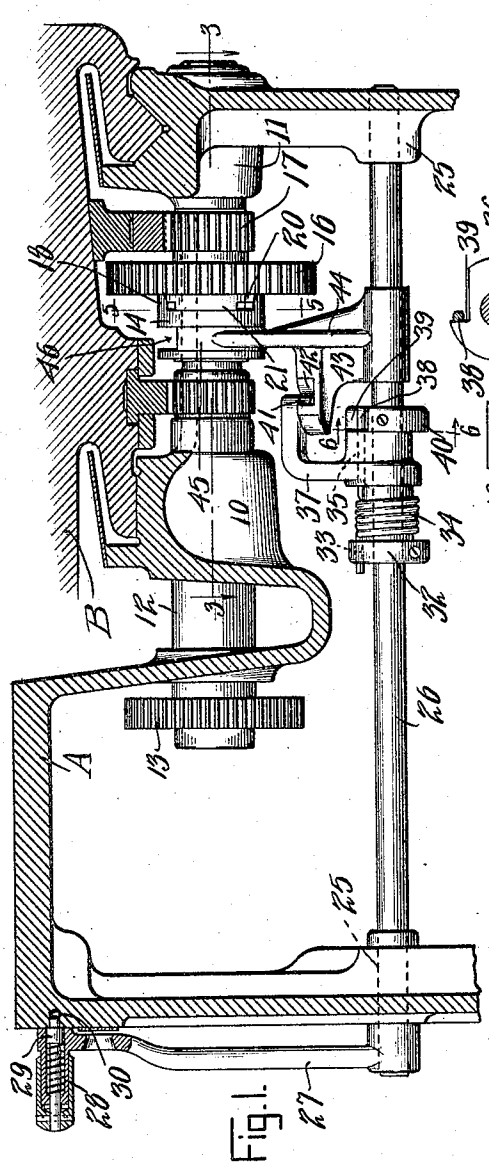

Fig. 1.

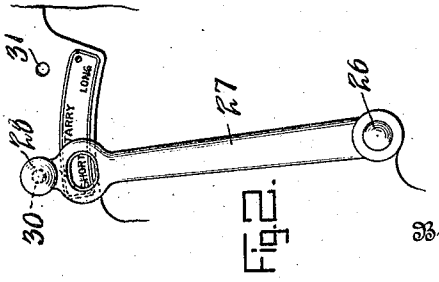

Fig. 2.

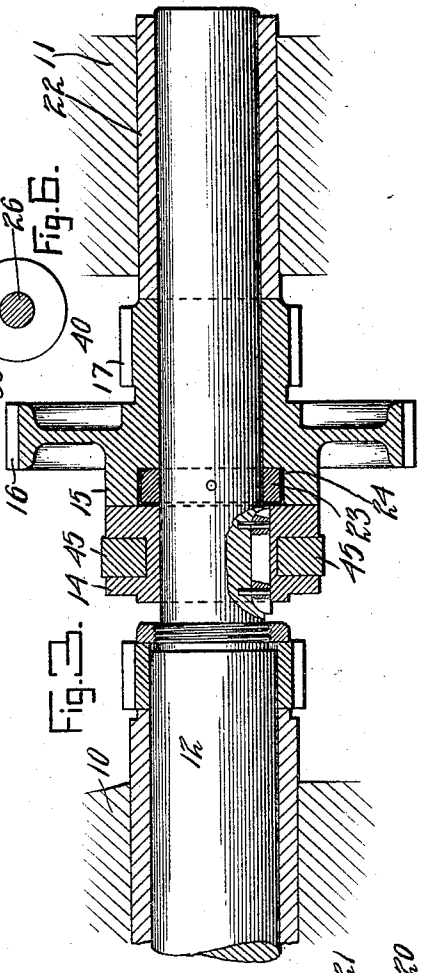

Fig. 3.

Fig. 6.

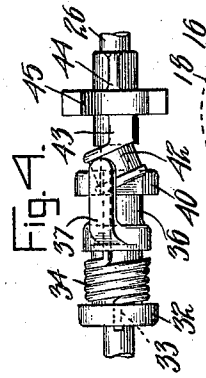

Fig. 4.

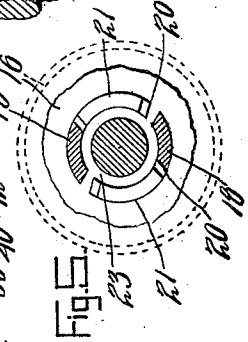

Fig. 5.

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UNITED STATES PATENT OFFICE.

PAUL STONER, OF WAYNESBORO, PENNSYLVANIA, ASSIGNOR TO LANDIS TOOL COMPANY, OF WAYNESBORO, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

TARRY DEVICE.

1,419,082. Specification of Letters Patent. **Patented June 6, 1922.**

Application filed November 18, 1920, Serial No. 424,905. Renewed April 28, 1922. Serial No. 557,228.

To all whom it may concern:

Be it known that I, PAUL STONER, a citizen of the United States, residing at Waynesboro, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Tarry Devices, of which the following is a specification.

My invention relates to a tarry or dwell device for reciprocating carriage motions and its object is to provide a novel construction whereby in this instance, a grinding wheel carriage may be made to tarry long enough at the ends of its travel to permit the work to make at least one revolution thereby insuring even grinding over the entire length of the work.

Another object is to provide means whereby the length of the tarry may be changed. Another object is to provide means whereby the clutch will automatically seat itself should it not register when shifted.

Referring to the accompanying drawings, which are made a part hereof and on which similar reference characters indicate similar parts,

Figure 1 is a sectional view through a portion of the base and wheel carriage of a grinding machine provided with my tarry device.

Figure 2, an elevation of the operating lever therefor;

Figure 3, a section on the line 3 x 3 of Figure 1.

Figure 4, a plan view of the clutch-yoke operating members,

Figure 5, a detail elevation of one of the clutch members on the line 5 x 5 of Fig. 1, and

Figure 6, a detail section on the line 6 x 6 of Fig. 1.

Referring to the drawings the character A represents a portion of the frame of a grinding machine and B a portion of the wheel carriage thereof. Mounted to rotate in the bearings 10 and 11 in the frame A of the machine is a shaft 12 which receives its power through a gear 13, and others not shown. The shaft 12 has keyed thereto for sliding movement, one member 14 of a coupling whose opposite member is formed integral with and on one side of a spur gear 16. The hub portion of gear 16 is formed as a pinion 17 which is in mesh with a rack mounted on the under side of the wheel carriage B. The coupling member 14 may be described as being provided with two segmental projections 18 whereas the other coupling member has two segmental projections each comprising a longer portion or step 20 and a shorter portion or step 21 extending from step 20. The coupling member 14 is capable of assuming two positions, one in which projections 18, 18 contact with 20, 20 and the other where projections 18, 18 and 21, 21 are in engagement. These positions are for the purpose of effecting a short and a long tarry respectively. The spur gear 16 which is loose upon the shaft 12 is confined between a bushing 22 and a collar 23 located within a depression 24 in the coupling member 15, and pinned to the shaft.

Mounted in bearings 25 in the frame of the machine is a shaft 26 provided at one end with an operating lever 27. This lever carries in its handle 28, a spring pressed plunger 29 adapted to enter either of the openings 30 or 31 in the base of the machine to lock the shaft in the position for either "short" or "long" tarry. The shaft 26 has mounted thereon, by means of a set screw, a collar 32 provided with a perforation 33 through which projects one end of a spring 34, the other end entering an opening 35 in the hub of a yoke operating lever 37 mounted loosely on the shaft 26. This hub carries a fixed pin 38 which is adapted to engage a shoulder 39 formed on the periphery of a collar 40 made fast to the shaft by a set screw. The lever 37 has mounted on its extreme end, a horizontally disposed roller 41 which operates in a short spiral groove 42 formed in an extension 43 of the shipper 44 which is mounted to slide on the shaft 26 and which has formed integral therewith a yoke 45 engaging a groove in the movable coupling member 14.

In operation, power is applied to the spur gear 13 to impart motion first in one direction and then in the other to the shaft 12 and coupling member 14 which is splined thereto for sliding engagement with either of the clutch teeth 20 or 21 of the member 15, thereby imparting to-and-fro motion to the pinion 17 and the rack and carriage B. When the lever 27 is in the position marked "Short," the projections 18 are in a position to engage the step 20 of the opposite member, thereby only permitting a slight rotation of the shaft 12 before motion is imparted to the carriage driving means, whereas when the

lever 27 is in the "long" position the intervening space between the projections 18 and the step 21 is longer thereby allowing more time for rotation of the shaft 12 before motion is imparted to the carriage. The changes in the length of the tarry are accomplished in the following manner. When it is desired to change from "short" to "long" tarry, the lever 27 is swung over to and locked in the position marked "Long" which movement turns the shaft 26 and collars 32 and 40, causing the shoulder 39 to bear against the pin 38 thereby slightly rotating the lever 37. This causes the roller 41 in the groove 42 to move in a plane at right angles to the line of the shaft 26 thus sliding the member 44, along shaft 26 to retract the member 14 far enough to bring the projections 18 to register with the steps 21 as described. When it is desired to change from the "long" to the "short" tarry, the reverse movement is imparted to the shaft 26 by means of the lever 27, thus causing the collar 32 to put tension on the spring 34 and the shoulder 39 of the collar 40 to recede from the pin 38 thereby allowing the spring to turn the lever 37 which through its roller 41 will advance the yoke 45 and coupling member 14 provided that the projections thereon register with the shoulders 20 of the member 15. Should they not register at first the rotation of the member 14 would cause them to do so and the tension of the spring would cause the levers 37 and 44 to function properly.

I do not desire to limit myself to the specific form shown and described, as various changes in the form and arrangement of parts will occur to those skilled in the art. Neither do I limit myself to the particular utility referred to hereinbefore, as my device may be used for other purposes than that described.

Having thus fully described my said invention, what I claim as new and desire to secure by Letters Patent, is:

1. In combination a coupling including a member having stepped projections thereon, and a co-acting member adapted to engage the steps of such projections selectively, a slidable shifter for said coupling, said shifter having a diagonal cam-groove, and means engaging said groove to shift the one of said members relatively to the other, substantially as set forth.

2. In combination a coupling including a member having stepped projections thereon, and a co-acting member adapted to engage the steps of such projections selectively, a slidable shifter for said coupling, and yielding means to operate said shifter, substantially as set forth.

3. In combination a coupling including a member having stepped projections thereon, and a co-acting member adapted to engage the steps of such projections selectively, a slidable shifter for said coupling, an oscillatable shaft on which said shifter slides, and means connecting said shaft to the shifter whereby oscillation of the shaft shifts the coupling, substantially as set forth.

4. In combination a coupling, a shaft, a shifter slidable thereon and having a diagonal cam-groove, a hub on the shaft having a follower in the cam-groove, and means whereby the shaft and hub may be given a rotary movement.

5. In combination a shaft, a member slidable thereon and having a cam groove, a hub on the shaft having a follower in the groove and means to move the hub comprising a collar on the shaft, and resilient connections between the hub and collar.

6. In combination a shaft, a member slidable thereon and having a cam groove, a hub on the shaft having a follower in the groove and means to move the hub comprising a collar on the shaft, and resilient connections between the hub and collar, a second collar on the shaft, a connection between the hub and the second collar to limit the action of the spring, substantially as set forth.

7. In a grinding machine, a carriage for a grinding wheel, racks thereon, pinions engaging said racks, a reversible driving shaft, a coupling interposed between the shaft and the pinions, one member of said coupling having projections and the other having means to engage with said projections, there being a clearance in each direction of motion between said projections and the means for engaging therewith and means for varying the extent of said clearance, substantially as set forth.

8. In a machine having a reciprocating carriage, means for reciprocating said carriage, a multiple-faced coupling interposed in said reciprocating means, a rock-shaft mounted beneath said coupling, yielding means mounted on said rock-shaft for shifting said coupling and means for rocking the said rock-shaft, substantially as described.

9. In a machine having a reciprocating carriage, means for reciprocating said carriage, consisting of a driving element and a driven element, a pinion on said driven element meshing with a rack-bar on said carriage, a rock-shaft, a yoke engaging said driven element and mounted to slide on said rock-shaft, an offset on said yoke, a spiral groove in said offset, a roller adapted to ride in said groove, a lever mounted loosely on said rock-shaft, and carrying said roller, a collar secured to said rock shaft, a spring secured to said collar and to said lever, a pin projecting from said lever and in the path of the movement of a shoulder on a second collar secured to said rock-shaft, and means for rocking said shaft and collar, substantially as described.

10. In combination a driving member, a

driven member having lost motion connection with the driving member, a shifter to vary the amount of lost motion, and means to move the shifter positively in one direction and yieldably in the other, substantially as set forth.

11. In combination, a reciprocating carriage for a grinding wheel, means for reciprocating said carriage, means for causing a dwell in the movement of the carriage at the end of each stroke, and means for varying said dwell, substantially as set forth.

12. In combination, a reciprocating carriage for a grinding wheel, means for reciprocating said carriage, means for causing a dwell in the movement of the carriage at the end of each stroke, comprising a coupling having opposed members, opposed stepped projections on said members, and means for shifting one of said members toward and from the other to vary the dwell, substantially as set forth.

13. In combination, a reciprocating carriage for a grinding wheel, means for reciprocating said carriage, means for causing a dwell in the movement of the carriage at the end of each stroke, comprising a coupling having opposed members, opposed stepped projections on said members, and means for shifting one of said members toward and from the other to vary the dwell, said shifting means being adapted to move said member yieldably in one direction and positively in the other, substantially as set forth.

In witness whereof, I have hereunto set my hand and seal at Washington, District of Columbia, this thirteenth day of November, A. D. nineteen hundred and twenty.

PAUL STONER. [L. S.]

Witnesses:
E. W. BRADFORD,
F. W. DAHN.