Oct. 9, 1951 W. G. ANDERSON 2,570,302

MACHINE FOR GRINDING CHAIN LINKS AND LIKE ARTICLES

Filed Aug. 27, 1948

FIG. 1

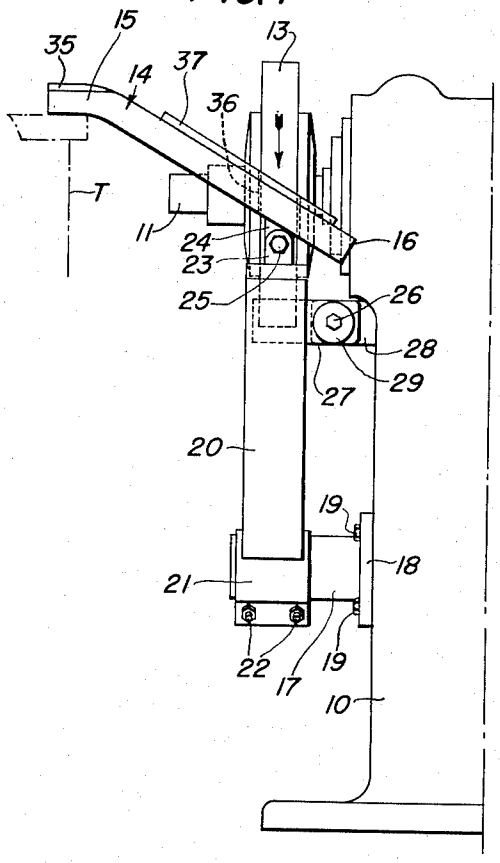


FIG. 2

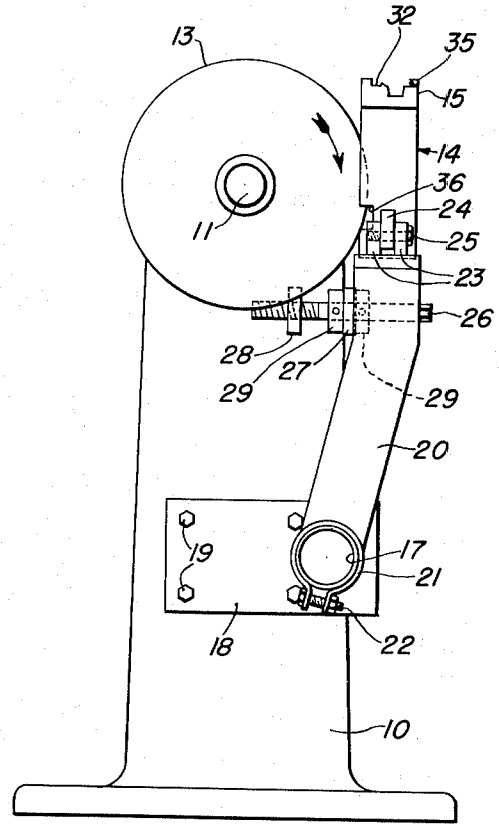
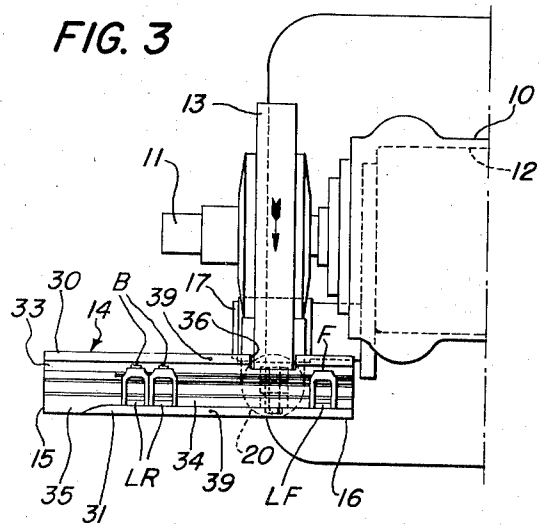


FIG. 3



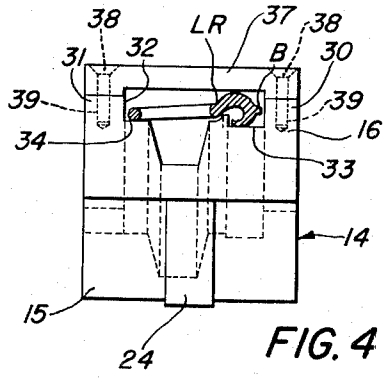


FIG. 4

INVENTOR.
W. G. ANDERSON
BY
ATTORNEYS

Patented Oct. 9, 1951

2,570,302

UNITED STATES PATENT OFFICE

2,570,302

MACHINE FOR GRINDING CHAIN LINKS AND LIKE ARTICLES

William G. Anderson, Geneseo, Ill.

Application August 27, 1948, Serial No. 46,402

1 Claim. (Cl. 51—74)

1

This invention relates to a machine for finishing or grinding chain links and like articles; although, as will hereinafter appear, the principles of the invention will be applicable to the performance of other operations on other articles.

In the manufacture of chain links of the type in which adjacent links are articulately interconnected by hooking each link to its neighbour, a casting process is employed in which several individual links are cast in the same mold, each link being connected by a gate to a common sprue. When the links are removed from the mold, they are, of course, united by the metal in the gates and sprue. It is conventional practice to break the individual links from the sprue metal, the gate metal being readily fracturable. This results in leaving on each link a projection or burr which must be removed. Conventional practice is to remove the burr by grinding.

Various machines have been developed in the prior art for handling the chain links during this finishing or grinding operation but none of these machines, in so far as I am aware, have proven entirely satisfactory from the standpoints of simplicity, economy and efficiency. It is therefore one of the principal objects of the present invention to provide an attachment for a machine of the class described that can be simply and inexpensively constructed and that will operate with the highest degree of efficiency consistent with production requirements.

Stated briefly, the invention resides in the provision of attachment means for the feeding of chain links, or similar articles, down an inclined track or chute and past the downwardly moving periphery of a grinding wheel mounted adjacent the chute or track on a horizontal axis of rotation, whereby the burrs will be ground off the links as they pass the wheel and whereby the rotation of the wheel will speed the movement of the links toward the discharging end of the chute.

Other objects of the invention are to provide: A simply constructed attachment having relatively few parts; a track or chute means that may be readily attached to grinding wheels of existing types; means for adjusting the track or chute toward or away from the grinding wheel to vary the amount of metal that will be removed during the finishing operation; and means for adjusting the angularity of the chute with respect to the wheel.

The foregoing and other important objects and desirable features inherent in and encompassed

2

by the invention will become apparent from the following detailed description of the preferred form of the invention as illustrated in the accompanying sheet of drawings in which:

Figure 1 is a front view of the machine;

Figure 2 is an end view of the machine;

Figure 3 is a plan view of the machine; and

Figure 4 is an enlarged end view of the track or chute as seen from the discharge end thereof, showing a chain link in position thereon.

As stated above, the invention is intended primarily for use in machines and operations of the type described above; however, the principles of the invention will be readily applicable to other operations and machines and it is therefore intended that the present disclosure be taken as illustrative and not limiting.

The particular type of machine chosen for the purposes of illustration comprises a main base or pedestal 10 at the upper portion of which is journaled a horizontal shaft 11. This shaft may be, of course, appropriately carried in any suitable bearing, the details of which are not important here, and may be driven by any suitable means such as an electric motor or the like, as represented at 12 by dotted lines in Figure 3. In the present illustration, the shaft 11 carries for rotation therewith a grinding wheel 13 which constitutes means for grinding or treating articles such as chain links delivered or fed into a certain relationship to the wheel 13 by means of a feeding element in the form of a track or chute 14.

Figure 1 best shows the inclination of the chute or track 14 and it will be noted that the track or chute has a receiving end 15 and a discharging end 16, the former being to one side of the wheel 13 and at a level above the horizontal axis of rotation of the shaft 11, and the latter being to the other side of the wheel and at a level below said horizontal axis. The angle of the chute is such that it passes through the general vertical plane in which the wheel 13 rotates and the direction of rotation of the wheel 13 (as indicated by arrows in the drawings) is downwardly past the chute 14. As will hereinafter appear, other means could be substituted for the wheel 13 in an obvious manner, since it is important only that whatever cutting or other treating elements that are moved past the chute travel, with respect to the chute and the articles carried thereby, downwardly past the chute and such articles.

The mounting of the chute 14 on the pedestal 10 is accomplished by means including a short

tubular pivot member 17 which has a flange or bracket 18 secured, as by cap screws 19, to a flat portion of the pedestal. An upright member 20 is bifurcated at its lower end to provide a clamp 21 which fits around the tubular member 17. The clamp is provided with a pair of bolts 22 which may be loosened and tightened to effect adjustment of the member 20 about the axis of the tube 17. The upper end of the member 20 is provided with a pair of upstanding ears 23 which receive therebetween an apertured ear 24 provided on the chute 14. One of the ears 23 may be apertured and the other may be bored and tapped to receive a cap screw 25 which constitutes adjustable securing means for mounting the chute 14 on the member 20. The upper or receiving end 15 of the chute is shown as resting on a table T on which may be carried a quantity of chain links to be fed down the chute 14. The angle of the chute may be adjusted with respect to the wheel, if desired, about the cap screw 25.

Adjustment of the member 20 about the tubular support 17 is provided for in the present case by means of an adjusting screw 26 which passes through an apertured lug 27 rigid on the member 20 and which is threaded into a lug 28 provided on the support 10. Collars 29 are pinned to the adjusting screw 26, one at each side of the lug 27 so that the adjusting screw is rotatably carried in the lug 27 but is held against axial shifting with respect to the lug.

The type of links shown in the drawings is that found primarily in chains used on agricultural implements, each link being substantially rectangular and having at one end a hook which articulately interconnects with the bar portion of the neighbouring link. In the drawings, a pair of links in rough or unfinished form are designated at LR and a finished link is designated in the same figure at LF. An unfinished link appears in section and on a larger scale in Figure 4. It will be noted that each of the unfinished links LR has a burr or projection B thereon which results from breaking of the individual link from the sprue metal.

The chute 14 is formed as a guide or slide down which the links LR may be fed by gravity, the operator of the machine merely laying the links in place in the track or chute at the upper or receiving end 15. The track is constructed to accommodate the particular type of link to be finished; although, it will be obvious that the track may be readily modified for adapting the same to the handling of other articles. In the present case, the upper portion of the track is generally U-shaped in cross section (Figure 4) and includes inner and outer sides 30 and 31 which between them define a channel 32 and a pair of slide portions 33 and 34. At the receiving end 15 of the chute, the outer wall 31 is cut down to the level of the proximate track or slide portion 34, as at 35, so that links may be more readily placed in the chute. Adjacent the discharge end 16 of the chute, the inner wall 30 is cut out at 36 (Figure 2) so that the track or chute is recessed in alignment with the wheel 13. In other words, the periphery of the wheel 13 travels through the recessed track at a point coincident with the desired finished edge on the link LF, such edge being designated in Figure 3 by the letter F.

The track or chute 14 has been shown in Figures 1 and 4 as having a cover 37 normally held in place as by screws 38 (Figure 4) threaded in tapped bores 39 in the chute (Figure 3). The cover has been omitted from Figure 3 in order that the entire track may be exposed in this figure.

In operation, links LR are placed in the channel 32 of the track 14 and allowed to slide down the inclined chute and past the wheel 13, the burr being ground off as it is engaged by the wheel. The track may be adjusted toward and away from the wheel 13 by the clamp 21, so that the operator can control the amount of metal being ground off. The wheel 13 rotates in the direction indicated at a substantially high speed. As a link is engaged and ground by the rapidly rotating wheel, the burr B is removed and the action of the wheel propels the finished link LF rapidly outwardly at the discharge end 16 of the chute, at which point a suitable receptacle may be provided.

From the foregoing, it will be seen that one of the prime characteristics of the invention is its simplicity and that the only moving part is the grinding wheel 13, which would necessarily be used in any machine to accomplish the grinding operation. In practice, an operator can pass more links through a machine of the type illustrated than through any prior art machine of which I am aware. The task of placing individual chains LR in the chute 14 is a relatively simple one, and the arrangement of the track or chute with respect to the wheel eliminates all guesswork and tedium.

What is claimed is:

For use with a grinder having a supporting pedestal on which a grinding wheel is carried for rotation on a horizontal axis, a flat face on the pedestal below the grinding wheel and normal to the axis of the grinding wheel, an attachment fixture, comprising: a bracket having apertured flange means for fixed mounting on the flat face of the pedestal and a pivot member rigidly carried by and projecting outwardly from the flange means and positionable below and on an axis parallel to the grinding wheel axis; an upright member having an upper end and a bifurcated lower end, said lower end embracing the pivot member for mounting the upright member for angular adjustment of its upper end toward and away from the front of the grinding wheel; clamp means cooperative with the furcations at the lower end of the upright member for securing said upright member to the pivot member in any one of a plurality of adjusted positions; an article-handling chute crosswise of and at the upper end of the upright member for disposition across the front of the wheel; means mounting the chute on said upper end of the upright member for angular adjustment of the chute about an axis normal to the axis of the pivot member; and means for securing the chute to the upright member in any one of a plurality of adjusted positions.

WILLIAM G. ANDERSON.

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