J. S. PEARCE.

AXLE TRUING MACHINE.

APPLICATION FILED APR. 20, 1912.

1,054,607.

Patented Feb. 25, 1913.

3 SHEETS—SHEET 1.

Fig. 1.

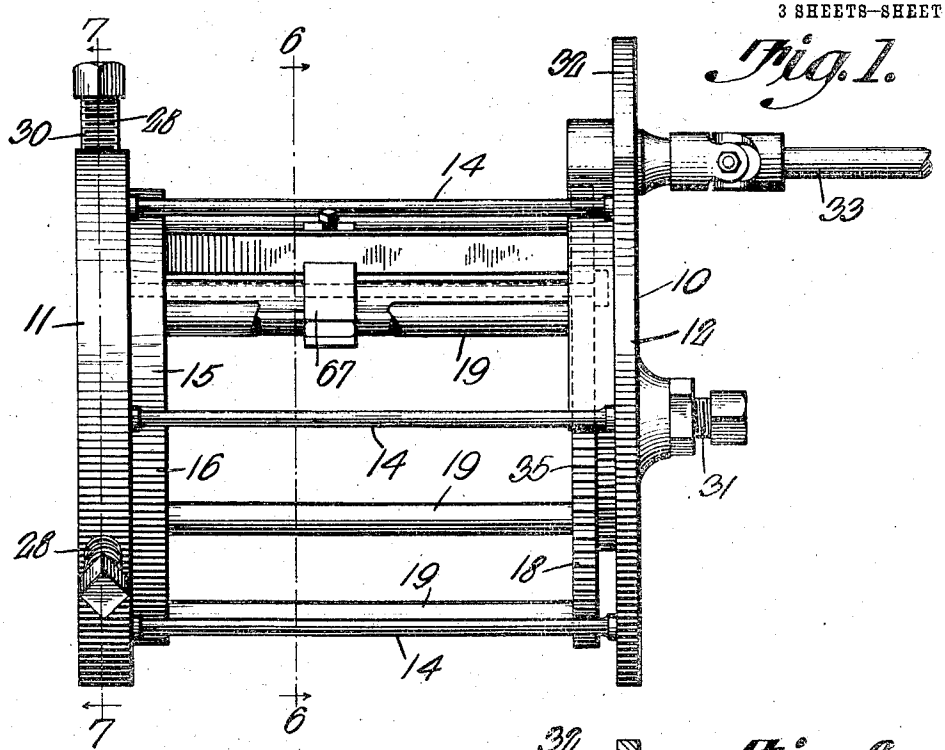
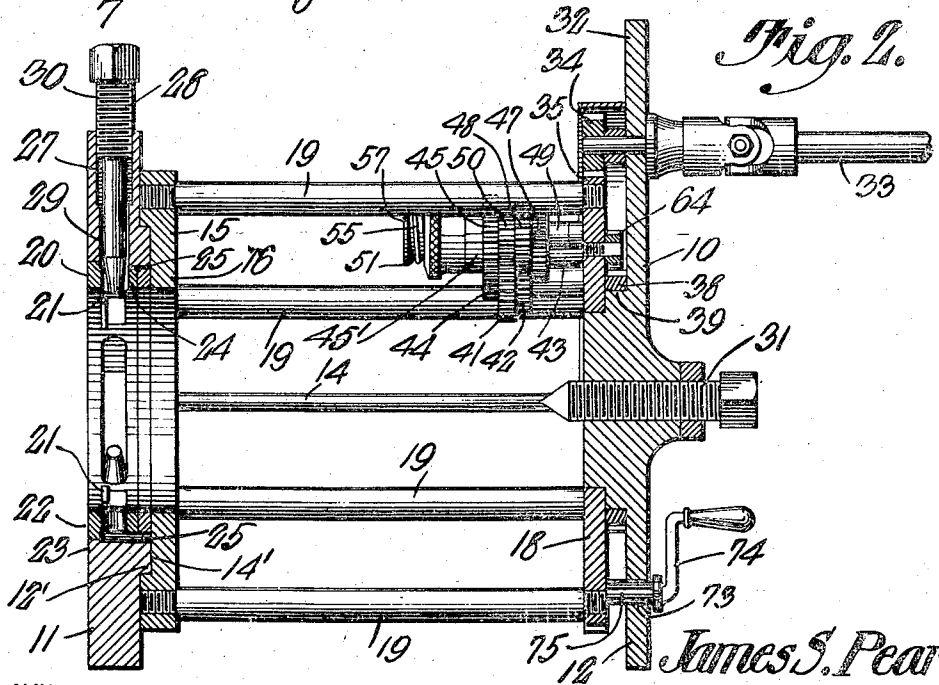


Fig. 2.



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3 SHEETS—SHEET 2.

Fig. 3.

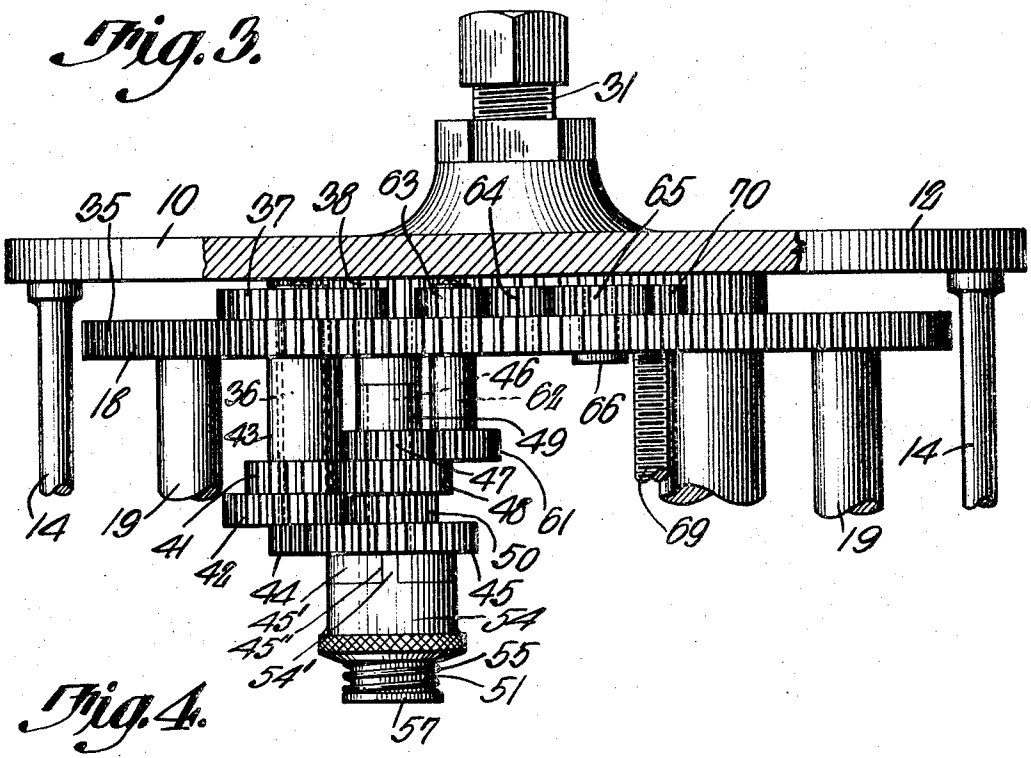


Fig. 4.

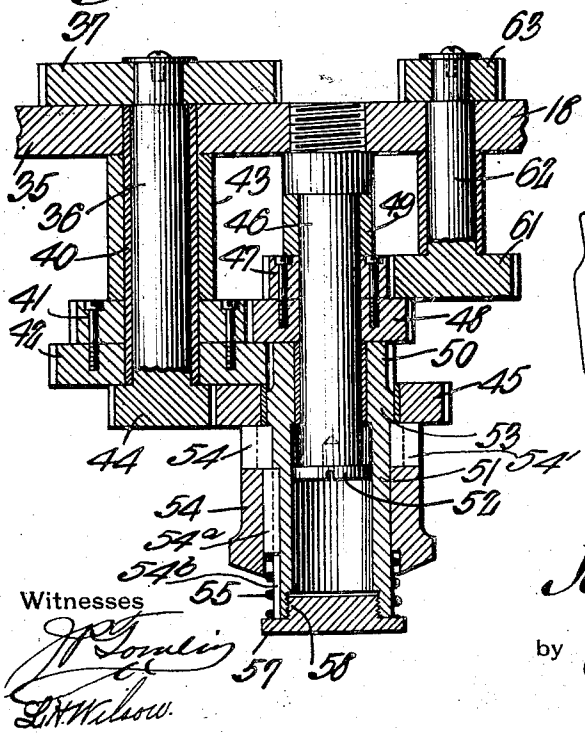
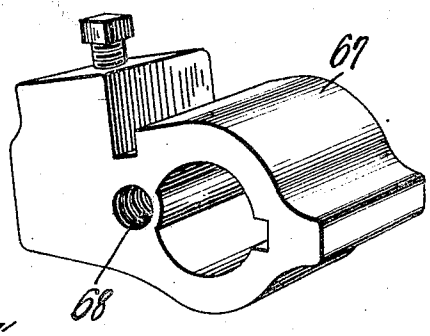


Fig. 5.



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3 SHEETS—SHEET 3.

Fig. 6.

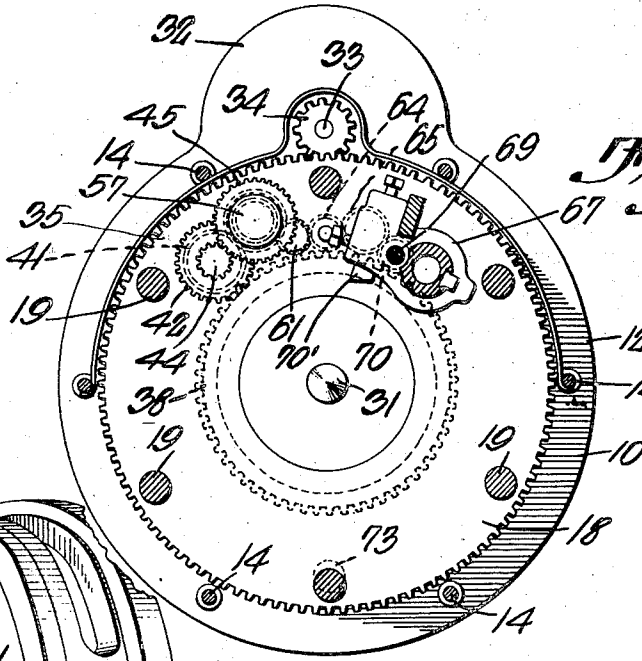


Fig. 8.

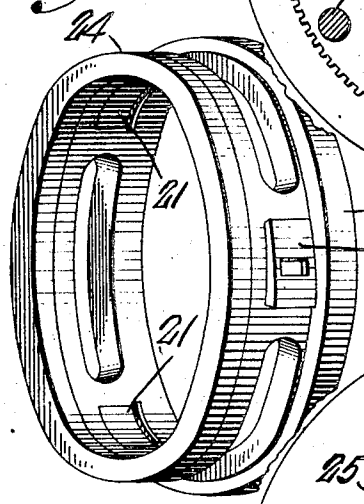
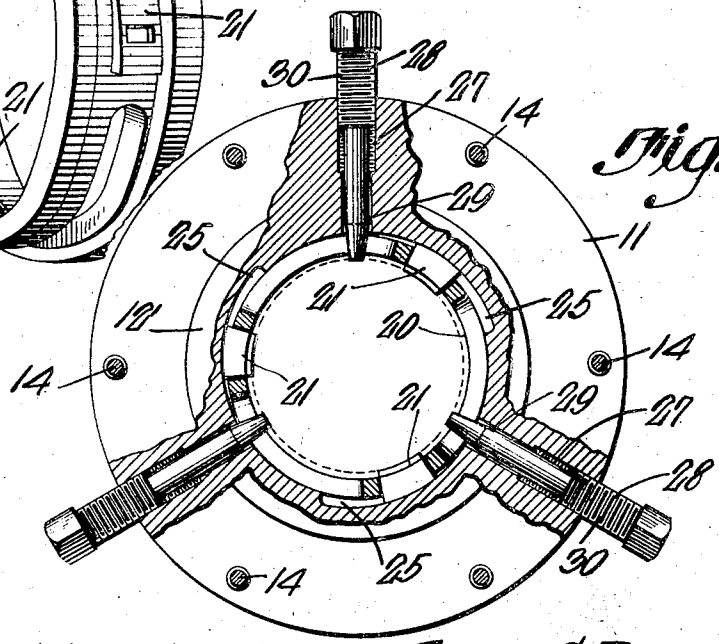


Fig. 7.



Witnesses

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UNITED STATES PATENT OFFICE.

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AXLE-TRUING MACHINE.

1,054,607. Specification of Letters Patent. Patented Feb. 25, 1913.

Application filed April 20, 1912. Serial No. 692,066.

To all whom it may concern:

Be it known that I, JAMES S. PEARCE, a citizen of the United States, residing at Portsmouth, in the county of Scioto and State of Ohio, have invented a new and useful Axle-Truing Machine, of which the following is a specification.

This invention relates to improvements in axle truing machine.

The primary object of the present invention is to provide a machine of this character which may be supported by the car axle without removing the same, the axle forming a support for a stationary member which in turn supports a rotary member, a tool being supported by said rotary member.

A further object of the invention is to provide means for discontinuing the operation of the rotary member and returning the cutting element to its initial position.

A still further object of the invention is to provide means for holding the machine by the axle, the clamping means being so disposed as to contact with the axle at a point where the same is not worn, thus assuring the proper centering of the machine to correctly true the axle.

A further object of the invention is to provide a screw fed tool holder which may be adjusted with respect to the axle.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter set forth and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings: Figure 1 is an elevation. Fig. 2 a longitudinal section. Fig. 3 an enlarged sectional view of the driving mechanism. Fig. 4 a sectional view of a portion of said driving mechanism showing the clutch which is actuated to discontinue the operation of the cutting element. Fig. 5 a perspective view of the tool holder. Fig. 6 a section on the line 6—6 of Fig. 1. Fig. 7 a section on the line 7—7 of Fig. 1, and Fig. 8 a perspective view of the annular member which supports the clamping blocks.

In the drawings, 10 designates the outer or stationary spool, which consists of the plates 11 and 12 which are connected by the bars 14, said bars 14 holding the plates in proper spaced relation, the plate 11 being provided with the boss or extension 12′ which fits with the recess 14′ on the annular member 15 of the inner spool 16. This spool consists of members 15 and 18 which are connected by the transverse bars 19, the inner member 16 being designed to rotate within the outer member. The members 10 and 16 thus form a pair of spools one of which is arranged within the other. The plate 11 receives the ring 20 which supports a plurality of blocks 21. The annular member 20 is supported by the member 11, its face 22 being flush with the outer face 23 of the member 11, the reduced portion 24 of the member 20 being spaced from the member 11. The member 11 is formed with a plurality of cam recesses 25 in which are positioned blocks 21, said blocks riding in said recesses as the member is rotated, the blocks being clamped on the axle by this rotation of this member. The member 11 is formed with the transverse screw threaded bores 27 which receive pins 28, the bores being reduced to accommodate the reduced contacting ends 29 of the pins 28, the body portions 30 of which are screw threaded. These screws are forced in contact with the axle after the member has been rotated to force the blocks in contact with the axle, the device in this manner being held against movement.

The axle is inserted through the annular member 20, the same being so disposed on the axle that the blocks 21 may be forced in contact with a portion of the axle which has not become worn, thus when the member 11 is rotated the device is properly centered with respect to the axle, the screw 31 which passes through the plate 12 supporting the stationary spool at the end of the axle remote from the annular member 20. It will be noted that the outer stationary spool will thus be supported securely on the axle and properly centered with respect thereto.

The plate 12 is formed with an extension 32 which supports the shaft 33 which may be driven in any suitable manner, by a portable motor or by other suitable power transmitting means. Arranged on the shaft 33 is a gear 34 which meshes with the large gear 35 formed on the periphery of the annular member or plate 18 of the inner spool, it being noted that as the shaft 33 is rotated, the gear 35 will be rotated. Supported by the large gear 35 is a stub shaft 36 on which

is mounted a pinion 37 disposed to mesh with the gear 38 formed integral with or attached to the boss 39 of the member 12, the pinion 37 rolling around this gear 38 which is stationary. The shaft 36 is embraced by a sleeve 40 and fixed to said sleeve are gears 41 and 42, a bushing 43 spacing the gear 41 from the large gear 35. A gear 44 is disposed on the shaft 36, said gear meshing with a gear 45, which is loosely rotatable on the extension 53, and is provided with the sleeve 45′, having two diametrically disposed recesses 45″, the purpose of which will later appear. A shaft 46 is supported by the large gear 35. A plurality of gears 47 and 48 are mounted upon the shaft 46, a sleeve 49 spacing the gear 47 from the gear 35. A gear 50 is journaled upon the shaft 46, said gear being formed with the sleeve 51 which extends beyond the shaft, the bore being of greater diameter than the head 52 of the shaft 46. The gear 45 as before stated is rotatably mounted upon extension 53 of the gear 50, the gear 45 and the gear 50 being locked together by the sliding clutch member 54 having the lugs 54′ for registration with the recesses 45″ of the sleeve 45′. A spring 55 for holding the member 54 thus locked embraces the sleeve 51, one end of said spring being housed within said sleeve, the other end contacting with the stop 57 which is provided with screw threaded extension 58. The clutch member 54, by means of the key 54^a in the slot 54^b, is held for rotation with the extension 53 and is permitted the necessary sliding movement. Thus it will noted that as the member 54 is held by the spring 55, the gear 45 will be fast with the extension 53 and the gear 50, so that the rotation of the shaft 36 will be transmitted to the gears 48 and 47 through the gears 44 and 45, the clutch member 54 and the gears 50, 42 and 41. When the clutch member 54 is in this position the rotation of the gear 47 will be transmitted to the gear 61 mounted upon the shaft 62, a gear 63 being mounted upon the end of said shaft remote from the gear 61. The gear 63 meshes with a gear 64 which transmits motion to a gear 65 mounted on a stub-shaft 66. The tool holder 67 is provided with the threaded bore 68 through which extends the feed screw 69, the gear 70 which is arranged upon the end portion of said feed screw, being in mesh with the gear 65, the rotation of the gear 65 feeding the tool holder 67 longitudinally of the inner spool, the tool 70′ truing the axle in this longitudinal movement.

When the tool holder has traversed the feed screw 69 and it is desired to return the same to its normal position, the clutch member 54 is pulled outwardly against the spring 55, placing the lugs 54′ out of the recesses 45′ and beyond the end of the sleeve 45′, so that the clutch member when held in this position will permit the gear 44 to rotate the gear 45 freely upon the extension 53 and without imparting rotation to the gear 50 and consequently the feed screw 69. The gear 35 is then rotated until the gear 65 is disposed adjacent the opening 73 in the annular member 12. The crank 74 is then inserted within the opening 73, the threaded extension 75 of said crank meshing with the gear 65, and as the crank 74 is turned, the gear 65 is rotated to feed the tool holder back to its normal position. The crank 74 is now disconnected and the clutch member 54 is rotated to place its lugs 54′ in registration with the recesses 45″, at which time the spring 55 snaps the member 54 into the proper position to lock the gear 45 to the extension 53. When the spool is being fed in the reverse direction by the crank 74, the shaft 33 is stopped.

The many advantages of a machine of this character will be clearly apparent as it will be noted that it may be attached to the axle without removing the same from the car, and that the unworn portion of the axle serves to center the machine on the axle.

This machine is particularly designed for turning or truing car axles when the journal becomes rough or cut through heating and without removing the same to a shop, as is ordinarily the practice. It will also be noted that the entire structure is such as may be easily and economically manufactured, and that the various parts may be readily assembled.

What is claimed is:

1. A truing machine, including two spools, one rotative within the other, coöperable means carried by both spools for rotating the inner spool, means carried by the outer spool for engaging the article to be trued to retain the outer spool stationary, a rotative feed screw journaled in the inner spool, a gear carried upon one end of the feed screw, a gear carried by the stationary spool and operatively connected to the feed screw gear, a tool carrier disposed upon the feed screw for longitudinal movement within the spool, a clutch interposed between the gear of the feed screw and the gear of the stationary spool for disengaging the feed screw, and manually operable means carried by the stationary spool for engaging the feed screw to return the tool carrier to normal position.

2. A truing machine, including two spools, one rotative within the other, coöperable means carried by both spools for rotating the inner spool, means carried by the outer spool for engaging the article to be trued to retain the outer spool stationary, a rotative feed screw journaled in the inner spool, a gear carried upon one end of the feed screw, a gear carried by the stationary spool and operatively connected to the feed screw gear,

a tool carrier disposed upon the feed screw for longitudinal movement within the spool, a clutch interposed between the gear of the feed screw and the gear of the stationary spool for disengaging the feed screw, manually operable means carried by the stationary spool for engaging the feed screw to return the tool carrier to normal position, and manually operable means for independently operating the gear of the feed screw when the clutch disconnects the feed screw to rotate the feed screw and return the tool carrier.

3. A truing machine, including two spools, one rotative within the other, means carried by the outer spool for engaging the article to be trued to retain the outer spool stationary, coöperable means carried by both spools for rotating the inner spool, a feed screw journaled in the inner spool and longitudinally thereof, a gear upon the outer end of the feed screw, a tool carrier mounted upon the feed screw for longitudinal movement within the inner spool, means carried by the inner spool and engaging the tool carrier to retain the same against rotation during the longitudinal movement of the tool carrier, a gear carried by the stationary spool at the same end as the gear of the feed screw, a train of gears carried by the rotative spool one of which is in engagement with the gear of the feed screw, and a clutch disposed in said train of gears for rendering the same inoperative as to the feed screw.

4. A truing machine, including two spools, one rotative within the other, means carried by the outer spool for engaging the article to be trued to retain the outer spool stationary, coöperable means carried by both spools for rotating the inner spool, a feed screw journaled in the inner spool longitudinally thereof, a gear upon the outer end of the feed screw, a tool carrier mounted upon the feed screw for longitudinal movement within the inner spool, means carried by the inner spool and engaging the tool carrier to retain the same against rotating during the longitudinal movement of the tool carrier, a gear carried by the stationary spool at the same end as the gear of the feed screw, a train of gears carried by the rotative spool, one of which is in engagement with the gear of the stationary spool and another of which is in engagement with the gear of the feed screw, a clutch disposed in said train of gears for rendering the train of gears inoperative as to the feed screw, and manually controlled means for engaging the feed screw when the clutch has been operated to render the train of gears inoperative, to operate the feed screw to return the tool carrier to normal position.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JAMES S. PEARCE.

Witnesses:

PAUL R. DUFFEY,

ARTHUR W. GUNTHER.