J. J. ACKER.

MACHINE FOR TURNING CAR AXLE JOURNALS.

APPLICATION FILED JAN. 20, 1911.

1,007,412.

Patented Oct. 31, 1911.

3 SHEETS—SHEET 1.

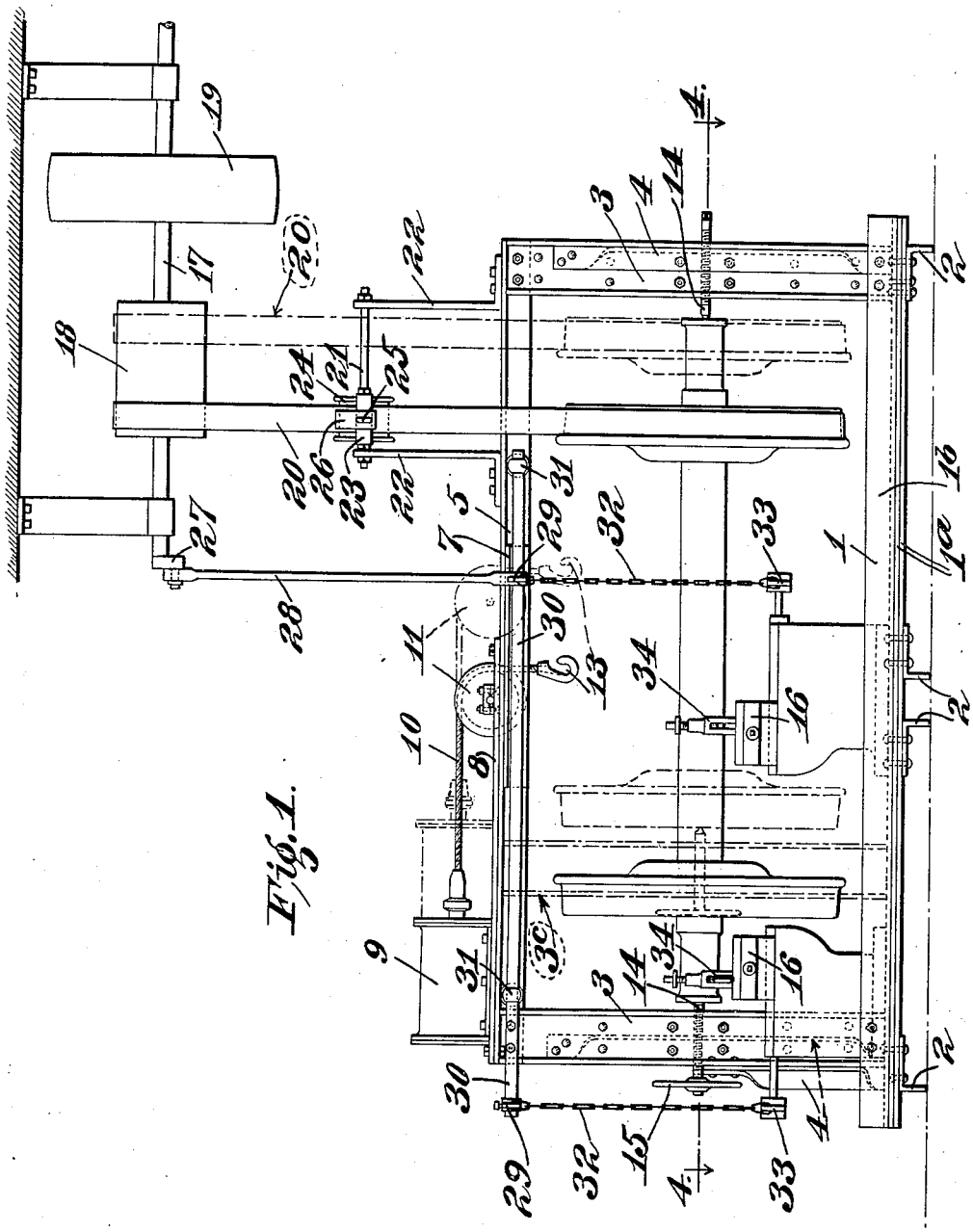

Fig. 1.

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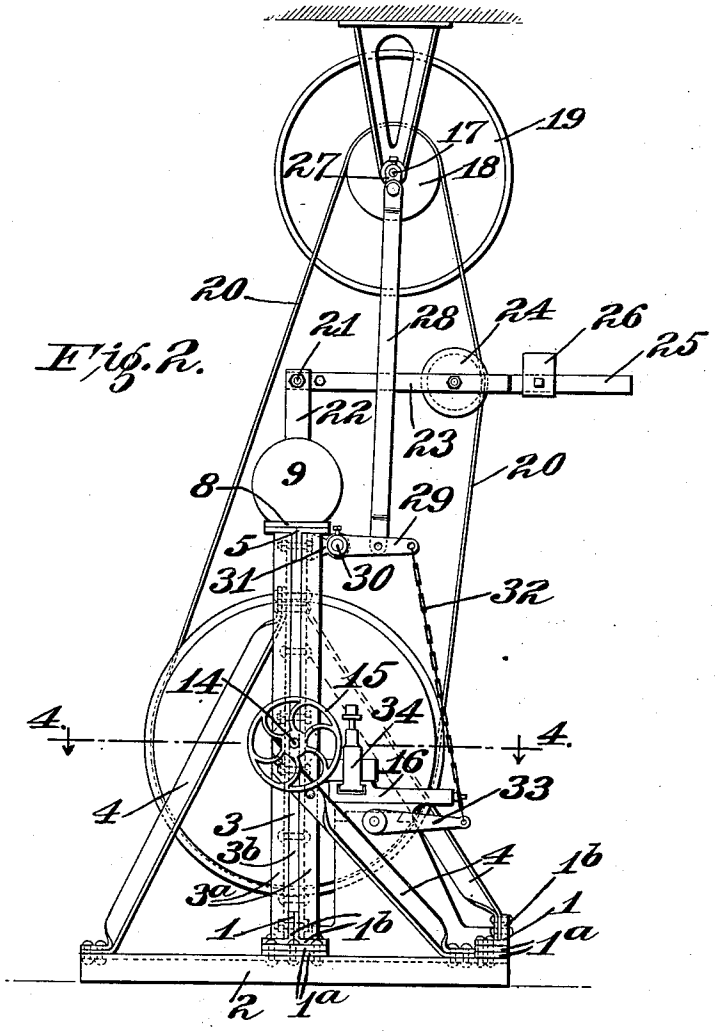

Fig. 2.

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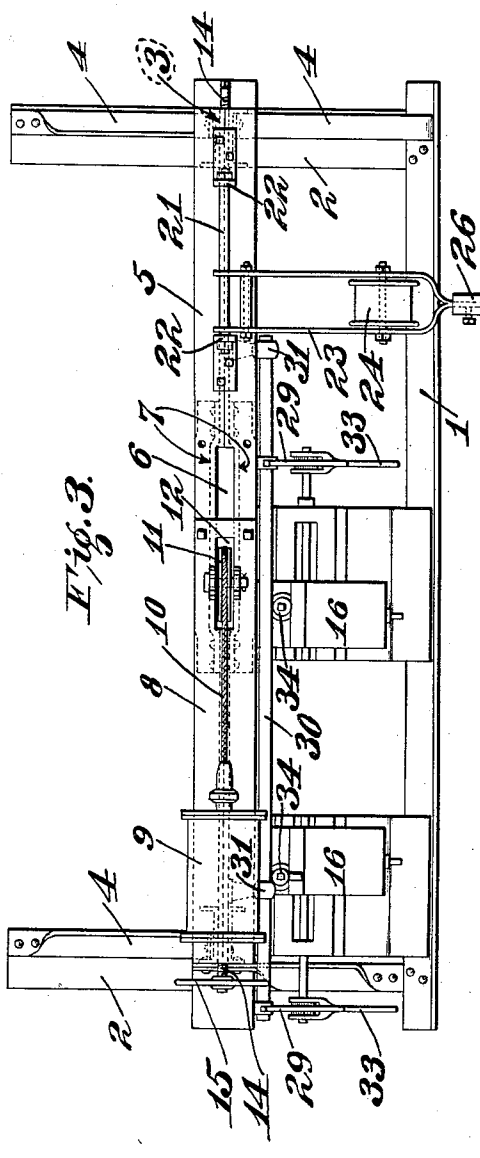

Fig. 3.

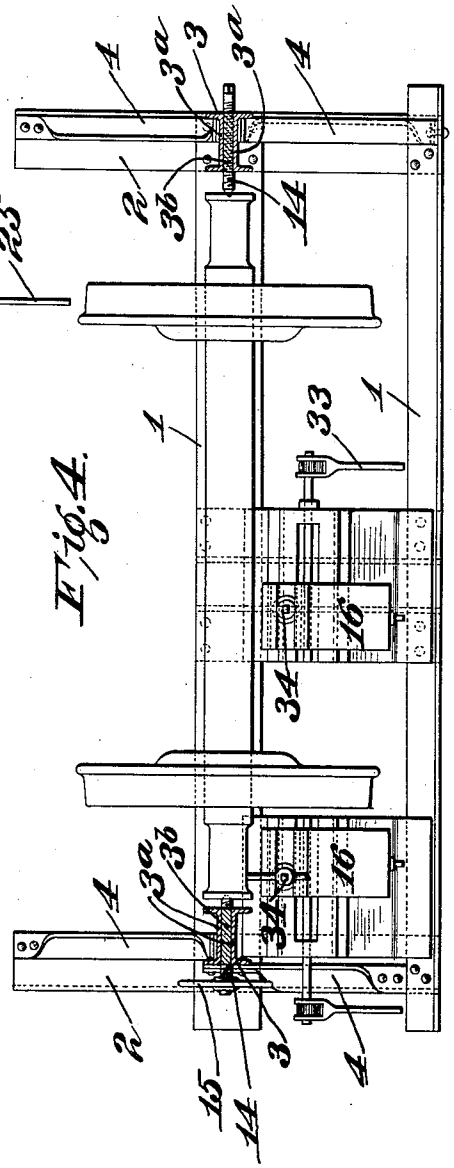

Fig. 4.

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UNITED STATES PATENT OFFICE.

JULIUS J. ACKER, OF HORTON, KANSAS.

MACHINE FOR TURNING CAR-AXLE JOURNALS.

1,007,412. Specification of Letters Patent. Patented Oct. 31, 1911.

Application filed January 20, 1911. Serial No. 603,620.

To all whom it may concern:

Be it known that I, JULIUS J. ACKER, a citizen of the United States, and a resident of the city of Horton, in the county of Brown and State of Kansas, have invented a new and useful Improvement in Machines for Turning Car-Axle Journals, of which the following is a specification.

This invention relates to machines for turning car axle journals and hub bearing faces, and more particularly on damaged axles.

It has for its principal objects to produce a machine for turning and truing the journals and hub bearing faces without removing the wheels from the axles, to provide for readily changing the machine for use in connection with axles having either outside or inside journals, and to attain certain advantages hereinafter more fully appearing.

The invention consists in the parts and in the arrangements and combinations of parts hereinafter described and claimed.

In the accompanying drawings which form part of this specification and wherein like symbols refer to like parts wherever they occur,—Figure 1 is a front elevation of a machine showing, in full lines, an arrangement according to my invention for turning outside journals, and in dotted lines, an arrangement for inside journals; Fig. 2 is an end elevation; Fig. 3 is a top plan view; and Fig. 4 is a horizontal section taken on or about the line 4—4 of Fig. 1.

The frame of the machine may obviously be constructed of cast metal sections and bolted or otherwise secured together or, as shown, of commercially rolled angle iron and channel sections and plates. The base, as shown, comprises longitudinal members 1 which are bolted or riveted to transverse members 2. Preferably, the longitudinal members comprise plates 1^a piled flatwise and riveted together, and stiffened by angles 1^b. The transverse members are preferably angles. It is also preferable to have the longitudinal members at the middle and one side only of the base.

At the opposite ends of the base are posts 3. The posts are each preferably composed of two channels 3^a placed back to back and riveted to an interposed filler plate 3^b. The posts are braced by inclined angle iron stays or braces 4.

Secured to the top portions of the posts 3 is a horizontal beam or longitudinal connecting member 5 comprising two angles riveted together to form a substantially T-shaped section. The middle portion of the beam 5 is slotted longitudinally as at 6 and the portions of the two angles comprising the beam which are cut away to provide this slot are reinforced by angles 7.

Secured on the top of the beam 4, at the left hand portion thereof, is a plate 8. Mounted on this plate is an air-hoist cylinder 9 whose piston is connected to a wire cable or a chain 10 which passes over a pulley 11 journaled on the plate 8. The cable or chain 10 hangs through a slot or perforation 12 in the plate and through said slot 6 in the beam 5; and it has secured on its end a hook or grapple 13 for the purpose of lifting the axle into position to be engaged by the pivots or centering studs 14 on which the axle is turned. The centering studs 14 project horizontally inward from the end posts 3 and the same are obviously adjustable, and one or both of them, as desirable, may have a hand-wheel 15 thereon for convenience in manipulating them.

Mounted on the base are two tool holders 16, the one on the left being located in position for turning outside journals and hub faces, and the other for those of the inside type. By full lines in Fig. 1, an axle having outside journals is shown in position to be operated upon, and by dotted lines, an axle of the inside journal type is shown. In cases where the machine is to be used for the latter type of axle a supplemental post 3^c is placed in the machine as shown by the dotted lines, because the distance between centers is shorter. This post is made removable and temporarily secured in place. Also, when the machine is so arranged, the plate 8 carrying the air-hoist cylinder 9 is shifted toward the right so as to bring the hook or grapple 13 over the middle of the axle.

Located above the machine is a countershaft 17 on which a pulley or drum 18 is fixed. The countershaft may be driven by a belt running over a pulley 19 fixed thereon or by any other desirable means. A belt 20 is passed over the drum 18 and right hand car wheel, whereby the axle is rotated.

Pivotally and slidably mounted on a horizontal rod 21 supported by uprights 22 on

the beam 5 is a yoke 23. This yoke has a grooved or flanged idler 24 journaled thereon and adapted to bear against the belt 20; and slidably mounted on the outer extension 25 of the yoke is a weight 26. By this arrangement, the slack in the belt is taken up.

Fixed on the end of the countershaft 17 is a crank 27 which is connected by a link or rod 28 to one of the arms 29 fixed on a rock-shaft 30 journaled in brackets 31 extending laterally from the beam 5. The two rock-arms 29 are respectively connected by chains 32 to the actuating levers or arms 33 for the operating mechanisms of the two tool holders 34 on the carriages 16. The operating mechanisms of the tool holders are of the usual and obvious ratchet and feed-screw type. Hence, as the rock-arms 29 are oscillated through the medium of the connection of the link 28 with the crank 27 the motion is transmitted through the chains 32 to the levers 33 of the respective tool feeding mechanisms. There is a positive upward pull on the levers by the chains while the downward movement of the levers is effected by gravity; and the cutting tool is thereby intermittently moved.

In the operation of the machine, it is first arranged for outside or inside journals, as the case may be, as above set forth. The axle with the wheels thereon is then lifted into position and centered on the centering studs 14. The cutting tool is adjusted with respect to the journal to be turned or trued, and the driving belt is slipped onto the tread portion of the car wheel. After the operation on the journal is completed, the axle is reversed end for end in the machine and the opposite journal is operated upon in the same manner. It is, of course, obvious that the chain connection may be broken between the rock-arm 29 and the particular tool-actuating mechanism not in use.

Obviously, the machine admits of considerable modification without departing from my invention. Therefore, I do not wish to be limited to the specific construction and arrangement shown.

What I claim is:

1. A machine for turning the journals of car axles with the wheels thereon, comprising an open frame, horizontally alined centering studs projecting inwardly from the opposite ends of the frame and adapted to engage the opposite ends of the axle, a driving device adapted for connection with the peripheral tread portion of one of the wheels on the axle, whereby the axle is rotated, a cutting tool, a cariage for the cutting tool, and means for automatically feeding the cutting tool, said feeding means being operatively connected with the driving device for the axle.

2. A machine for turning the journals of car axles with the wheels thereon, comprising an open frame, horizontally alined centering studs projecting inwardly from the opposite ends of the frame and adapted to engage the opposite ends of the axle, a countershaft having a driving pulley thereon, a belt adapted to connect said pulley and one of the wheels on the axle, whereby the axle is rotated, a cutting tool, a carriage for the cutting tool located adjacent to the journal of the axle, and a device for automatically feeding the cutting tool, said device being operatively connected to said countershaft so as to receive its motion therefrom.

3. A machine for turning journals of car axles of both inside and outside journal type with the wheels thereon, comprising an open frame, horizontally alined centering studs on said frame adapted to engage the opposite ends of an axle, a driving device adapted for connection with the peripheral tread portion of one of the wheels on the axle, whereby the axle is rotated, said driving device being shiftable to coöperate with the wheels on axles of both the outside and inside journal type, separate carriages for cutting tools located in proximity to the journals of both types of axles, and an actuating device common to the feeding mechanism for the cutting tools on each of said carriages.

4. A machine for turning journals of car axles of both inside and outside journal type with the wheels thereon, comprising an open frame, horizontally alined centering studs on said frame adapted to engage the opposite ends of an axle, a driving device adapted for connection with one of the wheels on the axle, whereby the axle is rotated, said driving device being shiftable to coöperate with the wheels on axles of both the outside and inside journal type and comprising a countershaft, a drum pulley on said countershaft, and a belt passing over said drum pulley and the peripheral tread portion of a wheel on the axle, separate carriages for cutting tools located in proximity to the journals of the two mentioned types of axles, said carriages having operating levers, a horizontal rock-shaft on the frame of the machine, rock-arms on said rock-shaft, a connection between each of said rock-arms and the respective operating levers on the cutting tool carriages, an operative connection between said countershaft and said rock-shaft, whereby motion is transmitted to the latter from the former.

5. A machine for turning journals of car axles with the wheels thereon, comprising horizontally alined centering studs adapted to engage the opposite ends of the axle, a cutting tool, a carriage for the cutting tool located in proximity to the journal of the axle, means for automatically feeding the cutting tool, a driving device for rotating the axle on said centering studs, said driving

device comprising a belt adapted to be fitted on the peripheral tread portion of one of the wheels on the axle, an operative connection between said driving device and said tool feeding means and a device for taking up the slack in said belt while it is applied to the wheel on the axle.

Signed at Horton, Kansas, this 9th day of January, 1911.

JULIUS J. ACKER.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."