F. M. CAESAR.

SWAGING MACHINE FOR VEHICLE AXLES.

APPLICATION FILED APR. 7, 1908.

914,480.

Patented Mar. 9, 1909.

Fig. 3

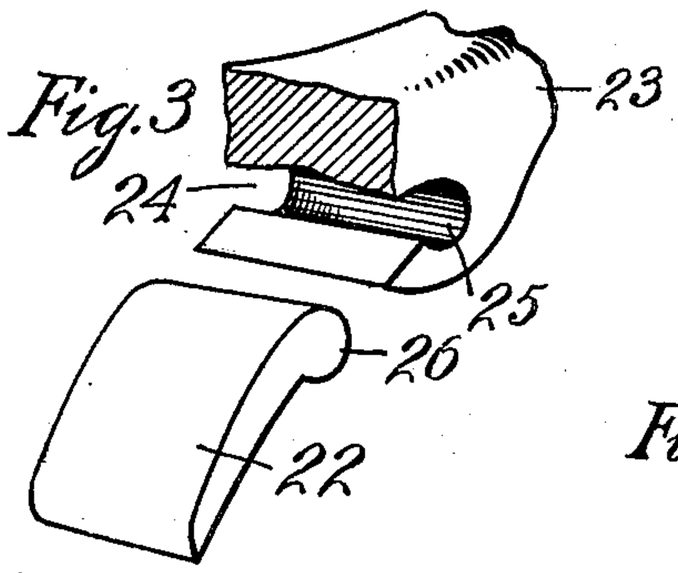


Fig. 1

Fig. 2

Fig. 6

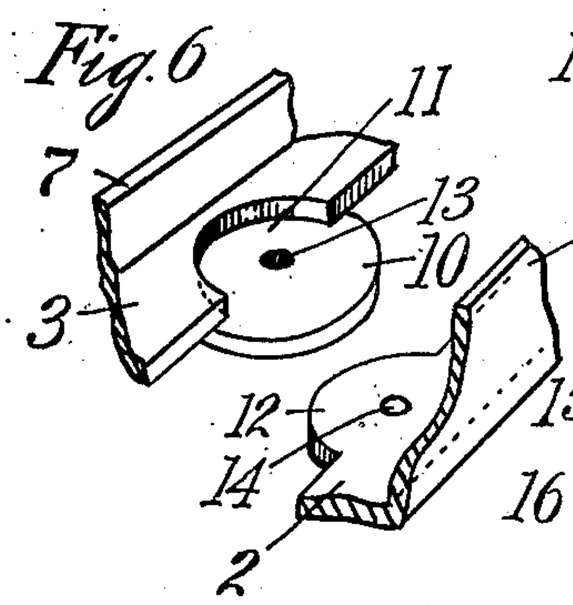


Fig. 4

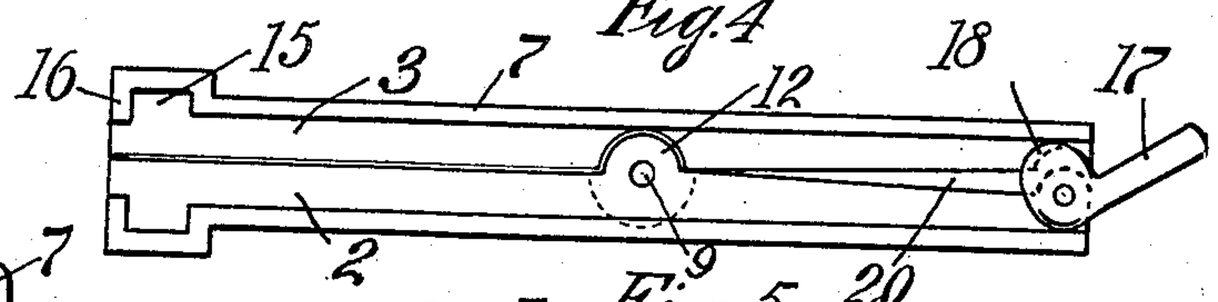
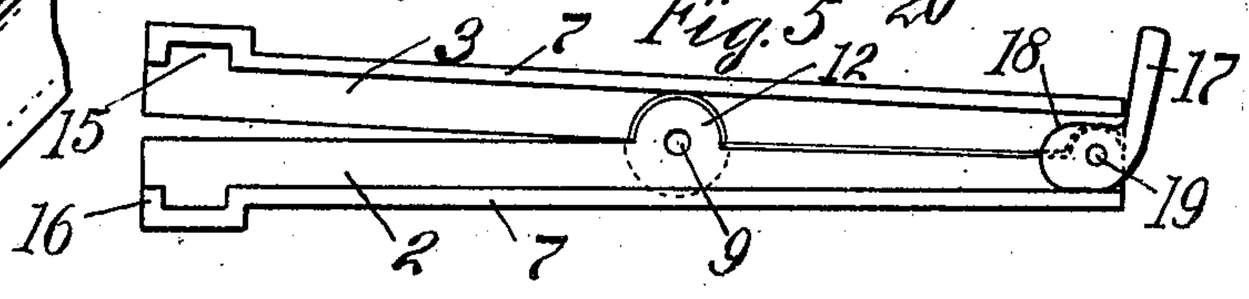


Fig. 5



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UNITED STATES PATENT OFFICE.

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SWAGING-MACHINE FOR VEHICLE-AXLES.

No. 914,480. Specification of Letters Patent. Patented March 9, 1909.

Application filed April 7, 1908. Serial No. 425,642.

To all whom it may concern:

Be it known that I, FRANK M. CAESAR, a citizen of the United States, residing at Rice Lake, in the county of Barron and State of Wisconsin, have invented certain new and useful Improvements in Swaging-Machines for Vehicle-Axles, of which the following is a specification.

My invention relates to improvements in swaging machines for vehicle axles, its object being to provide simple and efficient means for swaging or resetting the spindles of vehicle axles when the same have become worn by use.

To this end the invention consists in the construction, combination and arrangement of parts hereinafter described and claimed.

In the accompanying drawings forming part of this specification, Figure 1 is a perspective view of my improved machine, with a vehicle axle arranged therein in position to be operated upon; Fig. 2 is a central longitudinal section of the machine on line *x*—*x* of Fig. 1, with some parts broken away, showing a swaged axle spindle therein; Fig. 3 is a perspective view of the tongue or pawl of the operating lever, and so much of the lever as is necessary to show the connection of the parts; Figs. 4 and 5 are plan views of the clamping jaws in closed and open position, respectively, and Fig. 6 is a perspective view of the detached pivot parts of the two jaws, a fragment only of each jaw being shown.

As shown in the drawings the machine scomprises a base plate A carrying near one end a pair of channeled clamping jaws 2 and 3 and near the opposite end an abutment block 4. The abutment block is arranged in alinement with the clamping jaws and is removably and adjustably secured to the base by means of suitable fastenings, such as the bolt 5 and the bolt holes 6 formed in the base at suitable intervals along its length.

The clamping jaws consist of two coöperating members 2 and 3 having along their outer sides upright walls or flanges 7, so that, when assembled, the two jaws will form a trough or channel for the sliding rack 8. These jaws are pivotally connected with each other and with the base at a point between their ends by means of a pivot bolt or pin 9. In the drawing the jaw 3 is shown carrying upon the underside of its bottom wall a disk 10, while its bottom wall is cut away just above the disk so as to leave a semi-circular socket 11. The bottom wall of the jaw 2 is shown formed on its inner side edge with a lateral extension or lug 12 which will fit within the socket 11 of the other jaw 3, and rest upon the disk 10 upon the underside of the jaw 3. The pivot pin 9 passes through the registering holes 13 and 14 in the disk and lug, respectively, those holes being placed in line with the meeting inner edges of the jaws. The disk 10 is countersunk into the base plate as shown in Fig. 2. At their outer ends the jaws are formed with lateral enlargements 15, and inturned end walls 16 extending toward each other so as to grip and hold between them the bed portion 29 of the axle as well as to form abutments for the collar 28 thereof. At the other end of the jaws is a clamping lever 17 having an eccentric head 18 which is pivoted to one of the jaws, in this case the jaw 2, by means of a pivot 19. When the lever is turned into the position shown in Fig. 4, the eccentric head engages the side wall of the jaw 3 and turns the jaw upon its pivot 9 so as to force its outer end against the outer end of the jaw 2, at the same time bringing the end walls toward each other. To enable the jaws to work in this way their adjacent inner edges are cut away progressively from the pivot 9 toward the lever head 18, leaving a widening clearance 20 between them.

Arranged to slide longitudinally in the channeled jaw members is a sliding rack 8 having a head 21 adapted to be thrust against the end of the axle spindle to be operated upon. The rack is in position to be engaged by the tongue 22 of an operating lever 23 fulcrumed at its lower end in the side walls of the jaw members and extending upwardly and rearwardly therefrom. The lever is formed near its fulcrumed end with an upwardly extending recess or socket 24 within which is pivotally held the tongue or pawl 22, the end of which falls freely by gravity against the teeth of the rack. When the lever is raised the tongue will be lifted toward a vertical position and will pass the tooth upon which it rests and drop into engagement with the next succeeding tooth. When the lever is forced down, the tongue will be thrust against the tooth and will slide the rack ahead in the channeled jaws. As shown in the drawings, the slot 24 is deflected downwardly at its upper end so as to form a retaining bearing 25 for the transverse bead 26 at the upper end of the tongue.

Thus the bearing 25 will support and hold the bead 26 in such way as to give the tongue pivotal or rotatable support. By this construction the thrust against the tongue, when the same is forced against the teeth of the rack, will be received directly by the body portion of the lever, and not by pivots which will not so easily support the strain.

In use the axle spindle is heated to the required degree at the point where it is to be swaged or thickened, and the axle placed in the machine as illustrated in Fig. 1. It is laid lengthwise along the base with the spindle 27 to be swaged within the channeled jaws and the collar 28 within the enlargements 15 at the outer ends of the jaws. The bed portion 29 of the axle will extend between the end walls or grips 16 toward the abutment block 4. The gripping walls 16 are then moved inwardly by means of the lever 17 and tightened against the sides of the axle to hold it from yielding laterally under the pressure to which it is subjected in the swaging operation, and the abutment block 4 is adjusted and secured against the outer end of the axle. The sliding rack 8 is then forced against the end of the spindle to be swaged by means of the lever 23, as illustrated in Fig. 2. As the lever is crowded down, the heated and softened portion 30 of the axle spindle will be thickened and swaged as shown in Fig. 2, the abutment block 4 and the inturned gripping walls 16 holding the axle against the pressure exerted, the block 4 acting against the end of the axle and the inturned wall 16 acting against the collar adjacent to the spindle to be swaged.

I claim as my invention:

1. In a machine of the class described, an abutment and a longitudinally movable rack adapted to receive between them an axle to be swaged, clamping mechanism arranged between the rack and the abutment and adapted to engage and support the sides of the axle, and a tongued lever in position to engage and move the rack, the tongue being pivotally supported in the lower end of the lever.

2. In a machine of the class described, a pair of pivoted jaws formed at one end with inturned end walls, a lever arranged at the other end of the jaws in position to engage and swing the jaws upon their pivot, a toothed rack slidable upon the jaws, a pivotally mounted operating lever, and a tongue having pivotal support on the lever in position to engage the rack.

3. A machine of the class described comprising a base, an abutment adjustably secured to the base near one end thereof, a pair of swinging jaws secured to the base at the other end thereof, said jaws being formed at their outer ends with inturned end walls, mechanism for swinging the clamping jaws so as to move the inturned end walls toward each other, a sliding bar supported upon the jaws, and mechanism for forcing the bar forward toward the end walls of the jaws.

4. A machine of the class described comprising a base, an abutment block secured near one end thereof, a pair of channeled jaws arranged at the other end thereof and formed near their outer ends with lateral enlargements and inturned end walls, said jaws being pivotally connected between their ends, means for swinging the jaws so as to cause said end walls to approach each other, a toothed rack slidably supported on the jaws, an operating lever fulcrumed in the side walls of the jaws, and a tongue pivotally supported upon the lever in position to engage the teeth of the rack, for the purpose set forth.

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

FRANK M. CAESAR.

Witnesses:

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