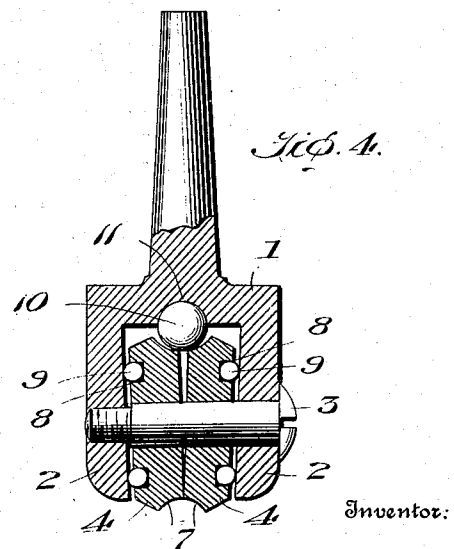
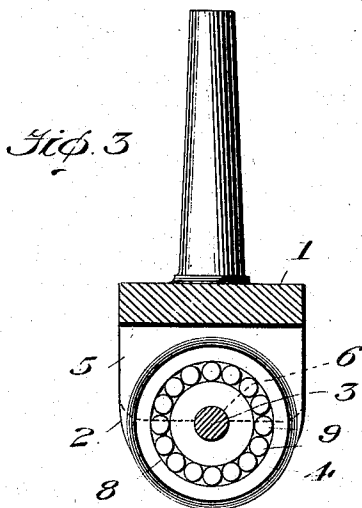
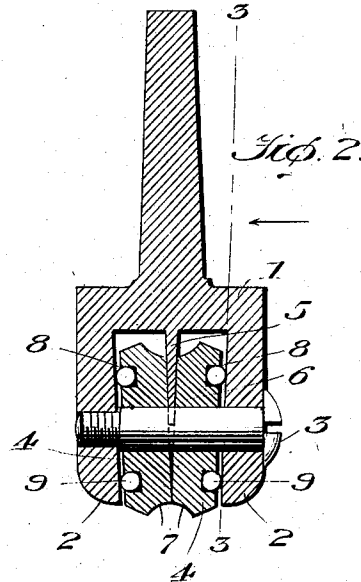
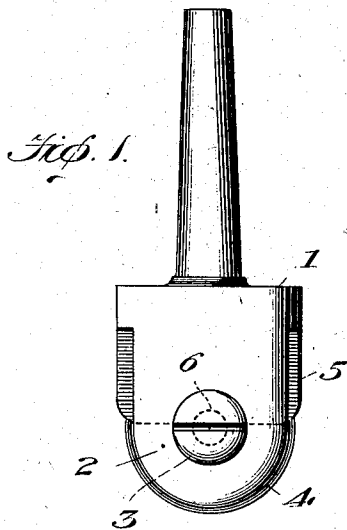


W. P. SENG.
RIVET SPINNING MACHINE.
APPLICATION FILED FEB. 15, 1909.

939,559.

Patented Nov. 9, 1909.



Witnesses

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UNITED STATES PATENT OFFICE.

WENDELIN P. SENG, OF CHICAGO, ILLINOIS.

RIVET-SPINNING MACHINE.

939,559.

Specification of Letters Patent.

Patented Nov. 9, 1909.

Application filed February 15, 1909. Serial No. 478,080.

To all whom it may concern:

Be it known that I, WENDELIN P. SENG, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain Improvements in Rivet-Spinning Machines, of which the following is a specification.

This invention is an improvement in riveting machines, of that particular class which are provided with a rotary tool, comprising a rotatable spindle having a head carrying a pair of grooved rollers operating to swage a head upon the end of the rivet as the spindle is moved to press the rollers against said rivet. In the operation of this type of machine the rollers are subjected to considerable lateral strain which results in excessive friction between the sides of the rollers and walls of the spindle-head, preventing the rollers from turning and thereby causing uneven wear on their working surfaces, as well as strain on the bearings of the machine, and heating of the rivet.

The primary object of my present invention, therefore, is to provide an arrangement for mounting the rollers in the spindle-head so as to reduce the friction of the parts to a minimum and thus permit the swaging rollers to freely turn during the riveting operation.

With this principal object in view my invention consists in the particular construction and arrangement of the parts of a rotary tool for rivet spinning machines, as hereinafter fully described and specifically set forth in the appended claims.

In the accompanying drawings, which form a part of this specification—Figure 1 is a side elevation of a rotary tool for rivet spinning machines, constructed in accordance with my present invention. Fig. 2 is a vertical transverse sectional view through the tool. Fig. 3 is a vertical sectional view on the line 3—3 of Fig. 2. Fig. 4 is a sectional view, illustrating a modification of the invention.

Like numerals of reference indicate like parts in all the figures of the drawings.

In carrying out my invention the head 1 of the spindle is provided with depending ears or bearings 2 2, to receive the bolt or axle 3 upon which the swaging rollers 4 4 are mounted between said ears. In the present instance the inner walls of the ears 2 2

converge slightly so that the rollers 4 will be disposed at an inclination from each other, as shown in the drawings, said rollers meeting, approximately, at their lower ends and are separated at their upper ends by means of a tapered division plate 5, the latter depending from the upper part of the spindle-head intermediate the ears. The tapered division plate 5 is notched at its lower end, as at 6, to receive the bolt or axle, whereby said plate not only serves to separate the upper ends of the rollers but also to reinforce the bolt or axle.

The rollers 4 are provided peripherally at their inner edges with grooves 7, which cooperate to produce a head on the end of the rivet of the desired shape.

In the operation of a tool of this character the pressure of the end of the rivet in the grooves 7 of the swaging rollers tends to separate said rollers pressing them with considerable force against the walls of the ears, and in order to reduce the friction between these parts the outer side of each roller is provided with an annular recess or channel, 8, in which a set of balls, 9, are placed to form ball-bearings between the swaging rollers and ears of the spindle-head.

It will be understood, of course, that the openings through the rollers, to receive the bolt or axle, are slightly enlarged to permit the rollers to be disposed at opposite inclinations, as shown, and it will be seen that as said rollers meet at their lower ends the end of the rivet is headed or rounded corresponding with the shape of the cooperating grooves in the swaging rollers.

Instead of separating the upper ends of the rollers by means of a division plate, as hereinbefore described, other means may be employed for the purpose. In the modification shown in Fig. 4 I have shown the employment of a ball, as 10, to take the place of the division plate, and in this instance the ball is of such a size as to bear within the peripheral grooves 7 of the swaging rollers, said ball being seated in a concave recess, 11, in the spindle-head.

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

1. A rotary tool for riveting machines, comprising a spindle, swaging rollers journaled therein on a single axle, means for

separating the rollers within the spindle, and means for bringing the rollers together at the outer end of the spindle.

2. A rotary tool for riveting machines, comprising a spindle having a head with outwardly converging walls, swaging rollers journaled in the spindle-head between the converging walls and disposed at opposite inclinations, separating means between the inner ends of the rollers, and anti-friction devices between the sides of the rollers and aforesaid walls of the spindle-head.

3. A rotary tool for riveting machines, comprising a spindle having a head with outwardly converging walls, swaging rollers journaled in the spindle-head between the converging walls on a single axle and disposed at opposite inclinations, separating means between the inner ends of the rollers, annular channels or race-ways in the outer sides of the rollers, and anti-friction balls in the race-ways to bear against the aforesaid walls of the spindle-head, substantially as shown and described.

4. A rotary tool for riveting machines, comprising a spindle having a head with outwardly converging walls, an axle extending between said walls, swaging rollers journaled in the spindle-head between the converging walls on said axle and disposed at opposite inclinations, and a tapered division

plate projecting from the spindle-head into the space between the rollers at the inner ends of the latter.

5. A rotary tool for riveting machines, comprising a spindle, having outwardly converging walls, a bolt or axle extending between said walls, swaging rollers journaled on the bolt or axle and disposed at opposite inclinations, and a tapered wall projecting from the spindle into the space between the rollers and engaging the bolt or axle, substantially as shown and described.

6. A rotary tool for riveting machines, comprising a spindle having converging walls, a bolt or axle extending between said walls, swaging rollers journaled on the bolt or axle between said walls and oppositely inclined, a tapered wall projecting from the spindle into the space between the rollers and engaging the bolt or axle at the center thereof, and anti-friction devices between the sides of the rollers and walls of the spindle, substantially as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WENDELIN P. SENG.

Witnesses:

FRANK J. SENG,
EDW. J. SCHAGER.