J. K. HAUBERG.

METAL ROLLING MACHINE.

APPLICATION FILED MAY 25, 1911.

1,045,022.

Patented Nov. 19, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

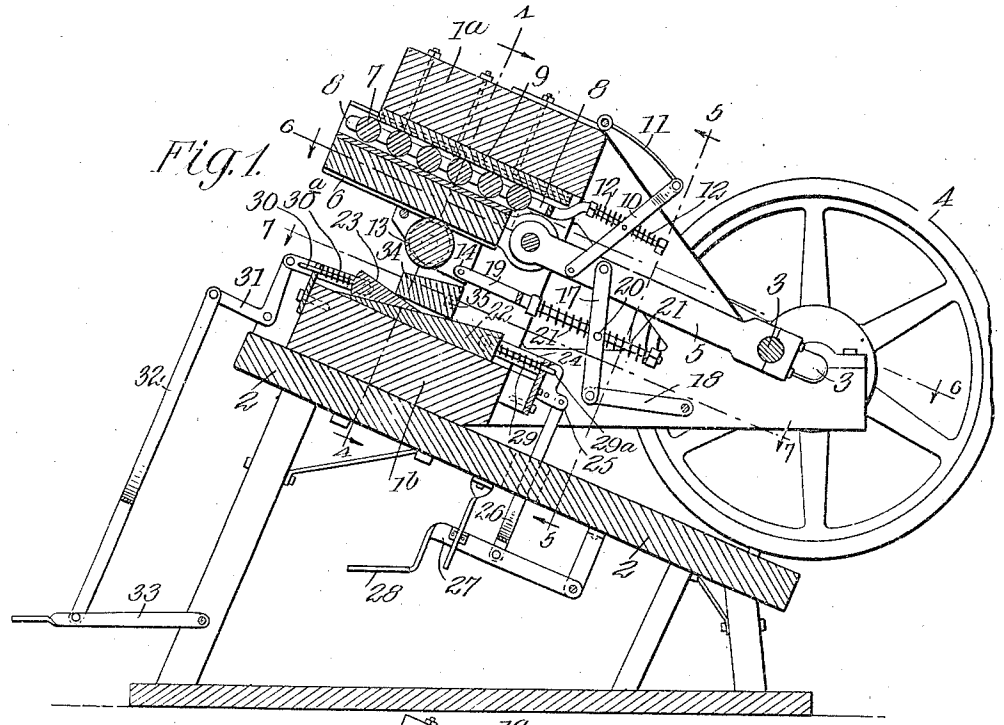
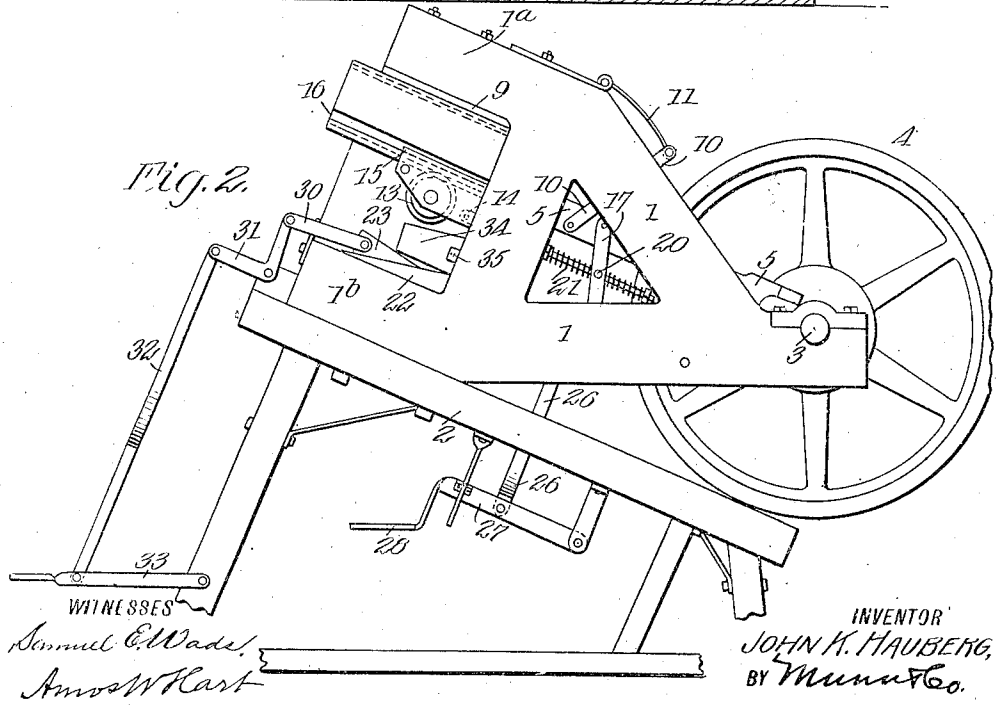


Fig. 2.



WITNESSES

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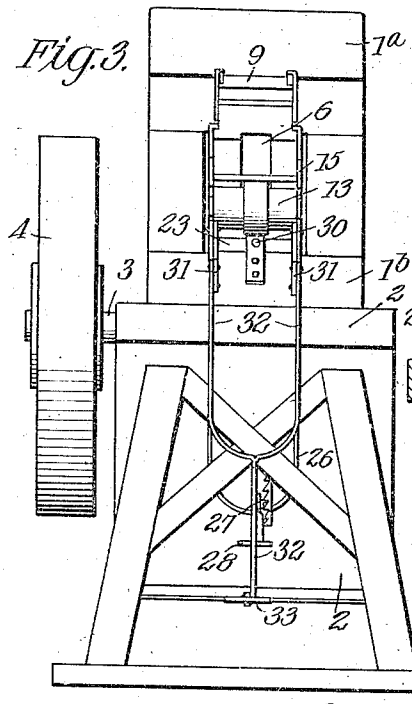
2 SHEETS—SHEET 2.

Fig. 3.



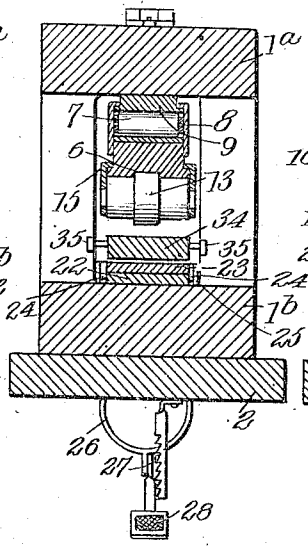


Fig. 4

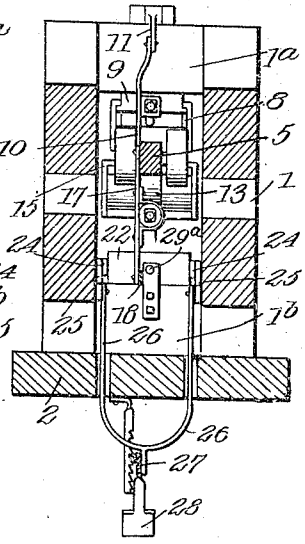


Fig. 5.

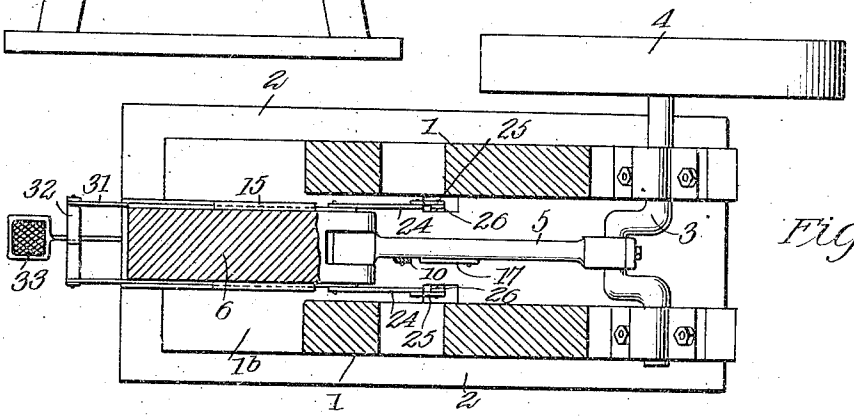


Fig. 6.

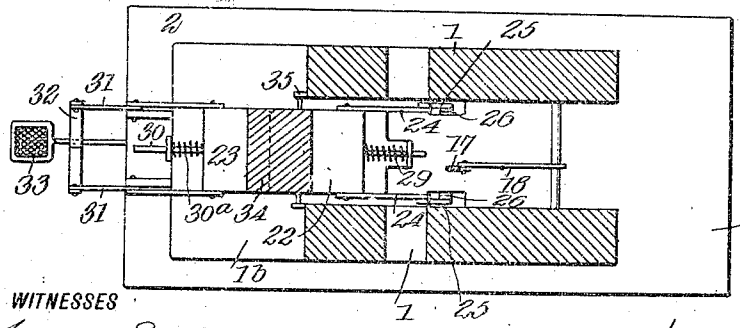


Fig. 7.

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UNITED STATES PATENT OFFICE.

JOHN K. HAUBERG, OF CANDO, NORTH DAKOTA.

METAL-ROLLING MACHINE.

1,045,022. Specification of Letters Patent. Patented Nov. 19, 1912.

Application filed May 25, 1911. Serial No. 629,481.

To all whom it may concern:

Be it known that I, JOHN K. HAUBERG, a citizen of the United States, and a resident of Cando, in the county of Towner and State of North Dakota, have invented an Improvement in Metal-Rolling Machines, of which the following is a specification.

My invention is a machine by which iron or other metal plates are rolled under pressure and thus drawn out, tapered, or beveled to any required degree.

A distinguishing feature is a roller carried by a reciprocating frame and adapted to act on a heated metal plate while held on an anvil block, and mechanism for adjusting such block higher or lower, or at different angles, according to the bevel it is desired to impart to the plate. The machine enables this result to be attained quicker than it can be done by hand, thus saving time and labor, besides doing the work better.

The details of construction, arrangement, and operation of the machine are hereinafter described, and illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal section of the working parts. Fig. 2 is a side view. Fig. 3 is an end view. Figs. 4 and 5 are cross sections on lines 4—4 and 5—5, respectively, of Fig. 1. Figs. 6 and 7 are longitudinal sections on lines 6—6 and 7—7, respectively, of Fig. 1.

As shown in Figs. 1 and 2, the Y-shaped slotted frame 1 to which the operative parts are applied is mounted and secured upon a base frame 2 having an inclination of about 30° to the horizontal. The upper and lower portions or jaws 1^a and 1^b of the frame are parallel and separated by a considerable space between which the rolling mechanism proper is arranged. A crank shaft 3, provided with a balance wheel 4, is journaled in the small end of the Y-frame, and a pitman 5 connects it with a bar or thick plate 6 which is supported by suitable means from the upper jaw 1^a, and between it and said jaw is arranged a series of steel antifriction rollers 7 which are journaled in a frame 8 and adapted to work in contact with a steel wear plate 9 that forms the under face of the upper jaw 1^a. The frame 8 is extended toward the crank shaft and is operatively connected with the pitman 5 by means of a lever 10 whose upper end is connected with the jaw 1^a by means of a link 11. The extended portion or shank of the frame 8 slides through a keeper or block pivoted to the central portion of the lever 10, and spiral springs 12 are arranged on opposite sides of this block. It will now be apparent that, by the rotation of the crank 3, the bar or plate 6 is reciprocated and that the rollers 7 are also caused to travel back and forth in the space between said plate and the facing block 9 of the jaw.

A roller 13 having a central circumferential rib is journaled in a short carriage 14 which is provided with inwardly projecting flanges at 15 that slide in grooves 16 formed in the sides of the bar or plate, 6, before described. This roller works in contact with the under side of said bar or plate 6 and is thus rotated by friction therewith; but it also has an independent movement due to its connection with the pitman 5 through the medium of the following mechanism. A lever 17 is pivoted to the pitman and its lower end is connected with the frame by a link 18. A rod or bar 19 is pivoted to the carriage 14 of the roller 13 and its extended portion or shank slides through a block that is pivoted at the center 20 of the aforesaid lever 17; and spiral springs 21 are arranged on opposite sides of said block, so that the action of the lever on the roller is, so to speak, cushioned.

On the lower jaw 1^b of the Y-frame is arranged a wedge 22, and a smaller wedge 23 lies thereon, both wedges being adapted to reciprocate toward or from each other. For adjusting or sliding the larger wedge 22, it is connected by links 24 with an elbow lever 25 which is, in turn, connected by a link 26 with a foot-lever 27, which is adapted to engage a ratchet bar 28 by which it may be held down in any position to which it may be adjusted by pressure applied by means of the foot. When the lever 27 is released, a spring 29, encircling a rod 29^a, which slides through a keeper, will restore or slide the wedge 22 back to its former or normal position. The smaller wedge is connected by links 30 with an elbow lever 31 which is, in turn, connected by a forked link 32 with a foot-lever 33, which is pivoted to a leg of the base frame 2. A spiral spring 30^a is arranged between the small wedge 23 and a keeper through which slides a rod that the spring encircles. It is obvious that

this spring serves to restore the block to, and hold it in, normal position after the operation of the foot-lever 33.

An anvil block 34 is supported upon the wedges 22 and 23 and adapted to be adjusted higher or lower or with its face at different angles, by adjustment of the wedges. The block is held in place by a pin running through it and projecting on the sides, as indicated at 35, the pin working in slots or grooves in the frame, so that it has a vertical play and also allows the block to swing in a vertical plane or adjust itself with the face at different angles. In other words, the block may be adjusted to any vertical or angular position desired through the medium of the wedges 22 and 23, so that a metal plate may be drawn out or tapered to any thickness or bevel desired. It will be understood that the roller 13 is made of tempered steel and that the central rib is the portion which works in direct contact with the plate held on the anvil 34.

It will be apparent that, when the plate or bar to be rolled is placed under the roller 13, the latter is forced up against the bearing plate or bar 6, which is moved forward and back by rotation of the crank-shaft 3, which, in turn, reciprocates the roller over the surface of the material, and it is at the same time revolved, which has the effect of drawing out, tapering, or beveling the metal plate. The roller 13 travels one-half the distance that the bearing plate 6 travels, and the steel rollers 7 travel one-half the distance of the said plate. In other words, the steel rollers 7 travel the same distance as the roller 13, so that the roller bearings are at all times directly opposite the roller 13 on which the weight or pressure is at all times imposed. By pressing on the foot-levers 27 and 33, it is apparent the wedges 22 and 23 may be easily and quickly adjusted toward or from each other according as it is desired to raise or lower the anvil block 34 or adjust its upper surface at different angles, according to the thickness of the plate to be rolled or the bevel to be imparted to it.

What I claim is:—

1. In a metal rolling machine, the combination with a supporting frame, of a roller and means for reciprocating it, a fixed guide on which the roller is adapted to travel, an anvil block arranged below the roller and over which the latter is adapted to reciprocate, and means for adjusting the said block higher or lower or at different horizontal planes relative to the roller, the same consisting of wedges arranged beneath the block and one upon the other, and devices connected with the wedges by which either may be adjusted for raising or canting the block, substantially as described.

2. The combination with a supporting guide frame having upper and lower fixed jaws separated by a considerable space, of a bar having a slidable connection with the upper jaw, means for reciprocating said bar, a roller working in contact with the bar and a carrier for said roller which is slidable on the bar, means for reciprocating the bar and roller, and an anvil block arranged in a plane below over which the roller is adapted to travel in its reciprocation, substantially as described.

3. The combination with the frame having upper and lower fixed jaws, a bar supported from and adapted to slide on the upper jaw, a crank shaft and pitman for reciprocating said bar, a roller journaled in a carriage which is slidably connected with the under side of said bar, so that the roller works in frictional contact with the latter, means connected with the pitman for reciprocating the roller simultaneously with the bar but in a measure independently thereof, and an adjustable anvil block arranged below the roller and on which it is adapted to act, substantially as described.

4. The combination with the frame having upper and lower fixed jaws, a bar supported from and adapted to slide on the upper jaw, a crank shaft and pitman for reciprocating said bar, a roller journaled in a carriage which is slidably connected with the under side of said bar, so that the roller works in frictional contact with the latter, means connected with the pitman for reciprocating the roller simultaneously with the bar but in a measure independently thereof, an adjustable anvil block arranged below the roller and on which it is adapted to act, and means for supporting and adjusting said block higher or lower or with its face at different angles, said means consisting of slidable wedges, one arranged on the other and both supported upon the lower jaw of the frame, and spring, lever, and rod mechanism for adjusting said wedges, substantially as described.

5. The combination with a frame, a reciprocating roller and means for actuating it, an adjustable anvil block over which the roller is adapted to reciprocate, of slidable wedges one arranged on the other and both supported on the fixed portion of the frame, spring retractors applied to the wedges, and mechanism for adjusting the wedges for lowering the block or changing its inclination, the spring serving to restore the wedges to their normal position when the mechanism is released, substantially as described.

6. The combination with a frame having fixed jaws separated from each other by a considerable space, a bar adapted to slide on the upper jaw and means for reciprocating it, a roller and a carrier in which it is journaled, said carrier being adapted to slide on said bar, means for reciprocating the bar,

and cushioning spring forming part of such mechanism, substantially as described.

7. The combination with a frame having fixed jaws, of, a bar supported on such jaw and adapted to slide over its lower face, a crank and pitman for reciprocating the bar, antifriction rollers interposed between the bar and the face of the jaw, lever and cushioning mechanism operatively connecting such rollers with the pitman, so that they reciprocate with the bar but independently thereof, a roller and a carrier in which it is journaled, the latter being supported from and adapted to slide on the lower face of the bar with which the roller works in contact, means connected wi h the pitman for reciprocating the roller carrier, and an anvil block arranged below the roller, substantially as described.

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

JOHN K. HAUBERG.

Witnesses:

ARTHUR ORROM,

W. I. TROUTMAN.