A. HEISLER.

CHIPPING MACHINE.

APPLICATION FILED FEB. 4, 1921.

1,408,735.

Patented Mar. 7, 1922.

2 SHEETS—SHEET 1.

FIG. 1.

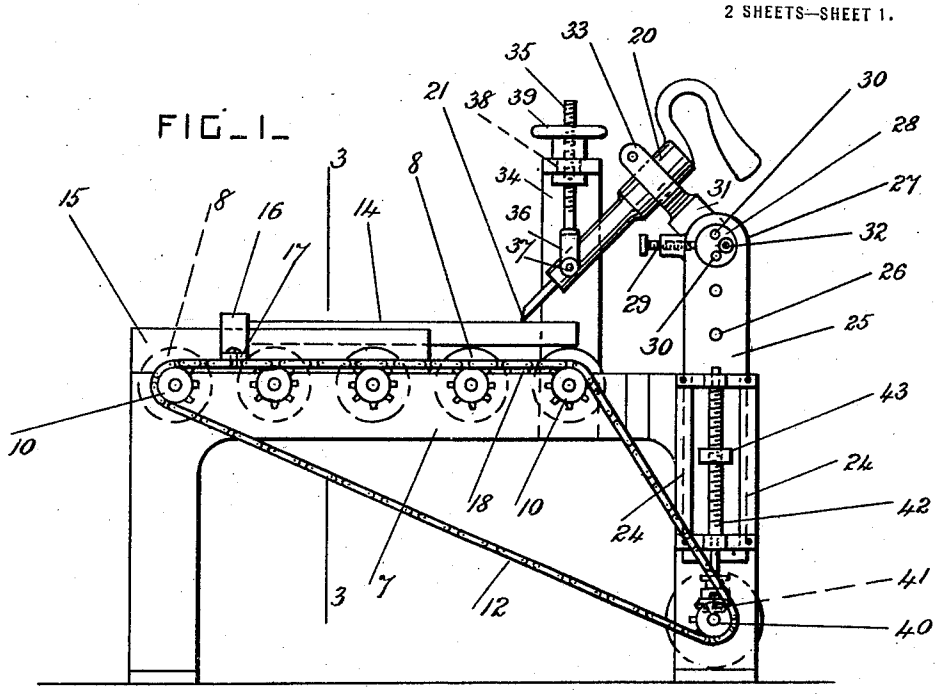
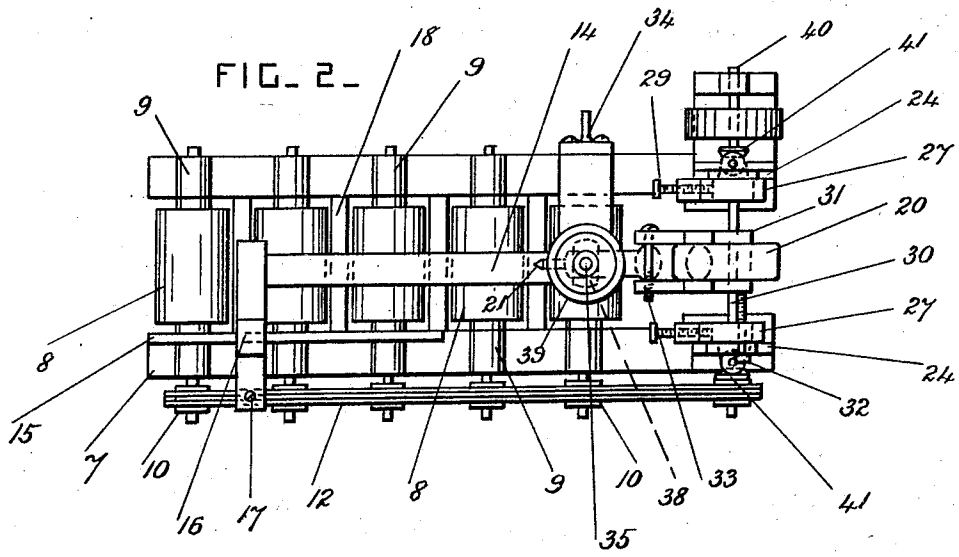


FIG. 2.



Inventor.
Aaron Heisler
by Herbert W. Penner
Attorney.

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2 SHEETS—SHEET 2.

FIG_3_

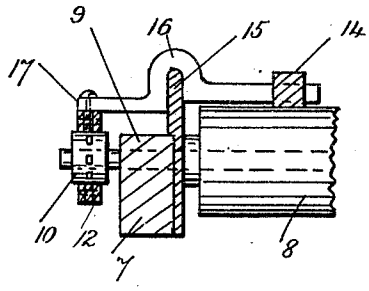


FIG_4_

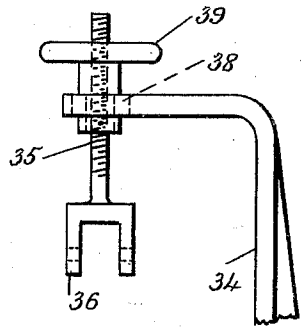


FIG_5_

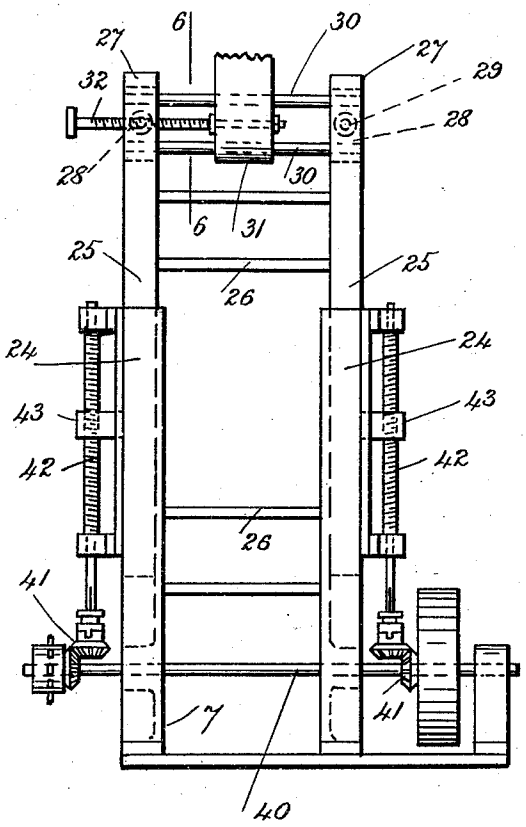
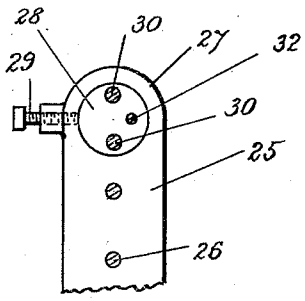


FIG_6_



Inventor.
Aaron Heisler
by Herbert W. J. Jenner.
Attorney

UNITED STATES PATENT OFFICE.

AARON HEISLER, OF PITTSBURGH, PENNSYLVANIA.

CHIPPING MACHINE.

1,408,735. Specification of Letters Patent. **Patented Mar. 7, 1922.**

Application filed February 4, 1921. Serial No. 442,512.

To all whom it may concern:

Be it known that I, AARON HEISLER, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Chipping Machines, of which the following is a specification.

This invention relates to machines for cutting grooves in metal billets; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed whereby the billet of metal to be grooved is supported and moved longitudinally under the cutting or chipping tool, and whereby the said tool is adjusted and operated.

In the manufacture of high grade tool steel, the steel is cast into ingots which are rolled out into billets. These billets are usually square in cross-section, and they frequently have longitudinal fissures or hair cracks in their surfaces. These cracks are nearly always parallel to the sides of the billet, and it is necessary to cut longitudinal grooves where they occur, as subsequent rolling does not eliminate these hair cracks from the billets, and it is not desirable that they should show in the finished product. When the hair cracks are cut out by forming grooves in the billet, the grooves so formed roll out with the metal, so that the surface of the finished product is free from cracks and imperfections.

In the drawings, Figure 1 is a side view of a chipping machine constructed according to this invention. Fig. 2 is a plan view of the machine. Fig. 3 is a cross-section through the guide, taken on the line 3—3 in Figure 1, and showing some adjacent parts. Fig. 4 is an end view of the support for the front end of the cutting tool. Fig. 5 is an end view of the machine. Fig. 6 is a cross-section through the guides of the saddle which supports the chipping tool, taken on the line 6—6 in Fig. 5.

The machine is provided with a supporting frame 7, and 8 are rollers arranged parallel to each other at suitable distances apart in a horizontal plane, and journaled in bearings 9 on the frame. Sprocket wheels 10 are secured to the roller shafts, and 12 is a drive chain which passes over all the sprocket wheels and drives all the rollers in the same direction. The chain is operated first in one direction, and then in the reverse direction by any approved motor or driving mechanism.

The steel billet 14 is placed on the rollers, and is supported by them in a horizontal position, and is moved back and forth longitudinally. A longitudinal guide 15 is secured to the front part of the frame at one side of the machine, between the ends of the rollers and the sprocket wheels. A hook-shaped or channel-shaped slide 16 is mounted on the guide 15, and is provided with a lug 17 which is bolted to the drive chain. One end portion of this slide engages positively with one end of the billet, so that it forms an abutment which prevents the billet from sliding rearwardly while being cut. Plates 18 are secured to the frame, and are arranged horizontally in the spaces between the rollers, to catch the chips which are cut off the billet.

A percussion tool 20 is preferably used for cutting the grooves, and it has a diamond-point cutting tool or chisel 21. The tool 20 is preferably a pneumatic tool similar to a rock drill or a riveting machine of approved construction.

The chisel 21 is reciprocated longitudinally, and is arranged at an angle of about 45° with the horizontal. In carrying out this invention other tools may be used for forming the grooves in the billet, such tools being of approved construction.

Vertical guides 24 are provided at the rear end portions of the frame, and 25 are uprights which are slidable vertically in the guides 24. The uprights are secured together by crosspieces 26, and they have bearings 27 at their upper end portions. Disks 28 are journaled in the bearings 27, and 29 are locking screws engaging with screw-threaded holes in the uprights. When these locking screws are screwed up they bear on the peripheries of the disks and clamp them in the bearings. Parallel bars 30 are secured to the two disks, and are arranged one above another at suitable distances apart. A crosshead 31 is slidable on the parallel bars 30, and 32 is a horizontal screw

which engages with one of the uprights and with the crosshead, and affords a means for sliding the crosshead on its guide bars. The crosshead 31 is provided with a clamping device 33 for the tool 20, and the tool can be adjusted longitudinally and axially in this clamping device before being clamped to the crosshead.

A bracket 34 is also secured to the frame, and projects over the front end portion of the tool 20. A screw 35 has a yoke 36 at its lower end which is pivoted to the front end portion of the tool by pins 37. The screw 35 projects vertically through a slot 38 in the bracket 34, and is provided with a hand-wheel 39 which is screwed on it.

The angle of the cutting tool or chisel is adjusted by means of this hand wheel and screw. The cutting tool or chisel 21 is reciprocated by power, and is adapted to strike much harder blows, and more rapid blows, than can be accomplished by hand, and it cuts V-shaped grooves in the billet, and thereby eliminates the hair cracks. The uprights 25 are preferably slid vertically by means of a driving shaft 40. Bevel wheels 41 are secured on this shaft, and on the lower end portions of screws 42 which work in nuts 43 secured to the uprights, so that the two uprights are slid up and down simultaneously.

The shaft 40 is driven by any approved means, and is revolved first in one direction and then in the reverse direction.

The rollers carry the billet back after each groove is cut or chipped in it, and the billet can be turned over so that each side of it can be operated on if necessary.

Machines constructed according to this invention can have their cutting tools operated by other approved means, as well as by compressed air or other fluid. They can also be used to operate on all kinds of metal which comes in billets or blooms, and they can be used to remove ridges or fins from the sides of the billets or blooms as well as for cutting grooves in them.

What I claim is:

1. A supporting frame, a series of rollers journaled in the frame and adapted to support the work, means for driving all the rollers in the same direction, and a power operated cutting tool arranged at one end of the series of rollers and adapted to cut the work.

2. A supporting frame, a series of rollers journaled in the frame, sprocket wheels secured to the said rollers, a drive chain passing over the said sprocket wheels, an abutment for the work when resting on the said rollers carried by the said drive chain, and a power operated cutting tool arranged at one end of the series of rollers and adapted to cut the work.

3. A supporting frame, a series of rollers journaled in the frame, sprocket wheels secured to the said rollers, a drive chain passing over the said sprocket wheels, a longitudinal guide secured to the said frame, a slide channel-shaped in cross-section and engaging with the said guide, one end portion of the slide being secured to the drive chain and its other end portion forming an abutment for the work when resting on the said rollers, and a power operated cutting tool arranged at one end of the series of rollers and adapted to cut the work.

4. A supporting frame, a crosshead having one end portion pivoted to the said frame, a reciprocating cutting tool carried by the free end portion of the said crosshead, and means for securing the said crosshead to the frame after adjusting it pivotally.

5. A supporting frame, a crosshead adjustable laterally in the frame and having one end portion pivoted to it, a reciprocating cutting tool carried by the free end portion of the said crosshead and separate means for securing the crosshead in the frame when adjusted pivotally and when adjusted laterally.

6. A support for the work, a percussive power-driven tool for cutting the work, uprights for supporting the said tool, and a clamping device engaging with the said tool and mounted pivotally in the said uprights.

7. A support for the work, a percussive power-driven tool for cutting the work, stationary guides, uprights adjustable vertically in the said guides and supporting the said tool, and means for securing the said tool to the said uprights.

8. A support for the work, a percussive power-driven tool for cutting the work, uprights having a horizontal guide between them, a crosshead adjustable on the said guide, and means for securing the said tool to the said crosshead.

9. A support for the work, a percussive power-driven tool for cutting the work, uprights provided with bearings, disks journaled in the said bearings, a crosshead supported by the said disks, and means for securing the said tool to the said crosshead.

10. A support for the work, a percussive power-driven tool for cutting the work, uprights provided with bearings, disks journaled in the said bearings, parallel bars having their end portions secured to the said disks and extending horizontally between them, a crosshead adjustable on the said bars, and means for securing the said tool to the said crosshead.

11. A support for the work, a percussive power driven tool for cutting the work, uprights for supporting the said tool, a crosshead secured to the rear end portion of the tool and pivoted in the said uprights, a stationary bracket, and adjustable means for supporting the front end portion of the tool

from the said bracket and adjusting the tool pivotally to vary its angle with the work support.

12. A support for the work, a percussive power driven tool for cutting the work, uprights for supporting the said tool, a crosshead secured to the rear end portion of the tool and pivoted in the said upright, a stationary bracket, a screw pivoted to the front end portion of the said tool, and a handwheel engaging with the said screw and supported by the said bracket.

In testimony whereof I have affixed my signature.

AARON HEISLER.