Dec. 19 1922.

1,439,370

L. A. LAMBERT.
METAL BUR FILER.
FILED SEPT. 28. 1920.

2 SHEETS-SHEET 1

Fig. 1.

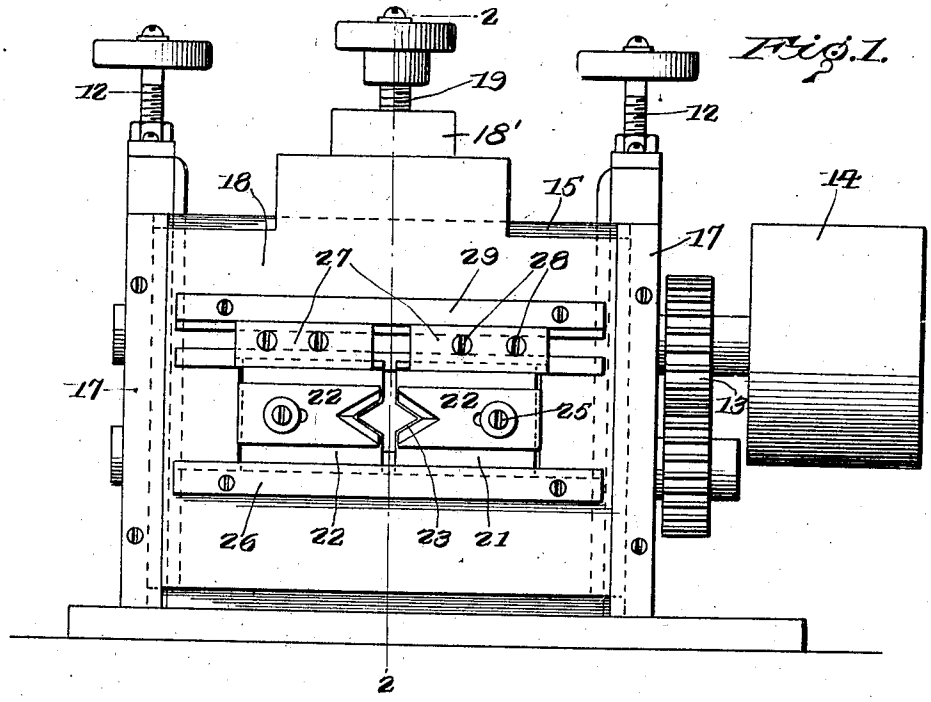
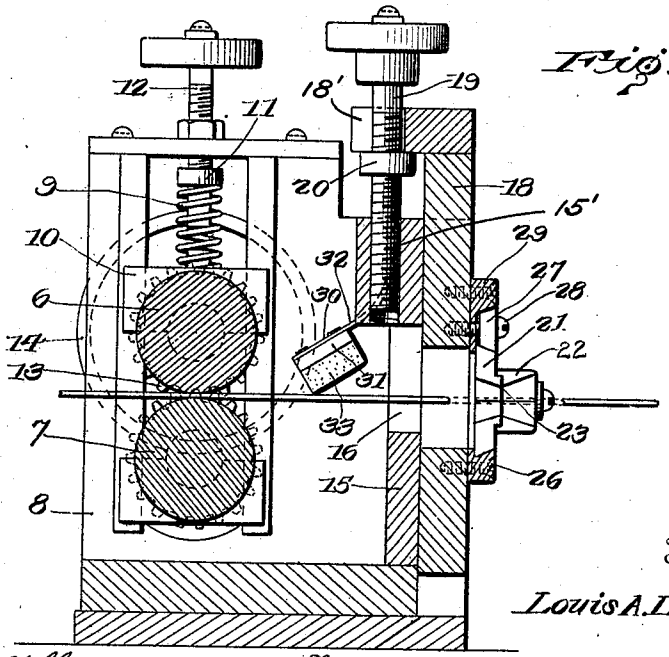


Fig. 2.



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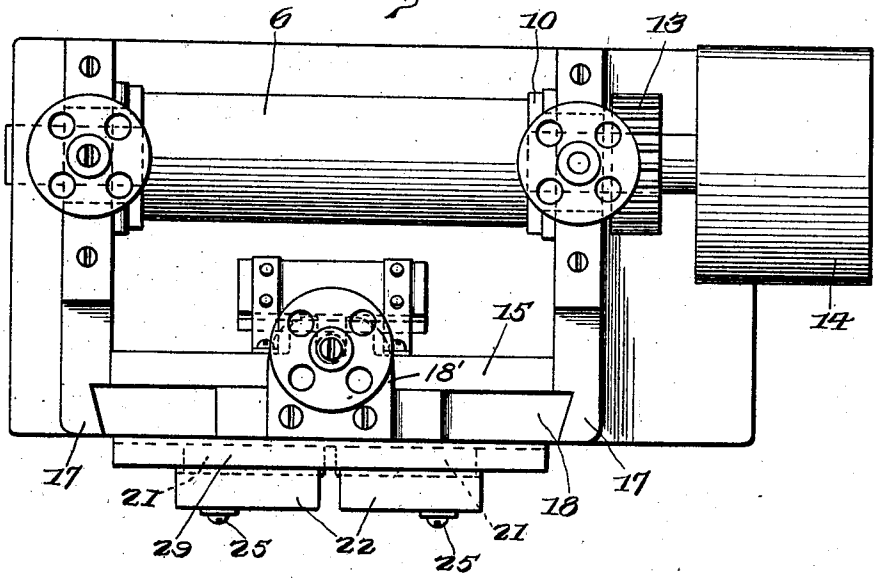
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2 SHEETS-SHEET 2

Fig. 3.



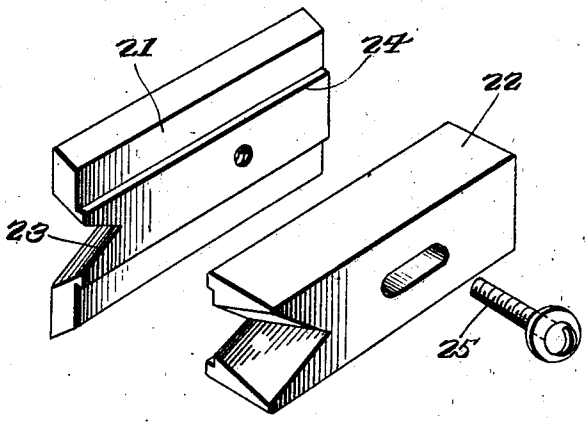
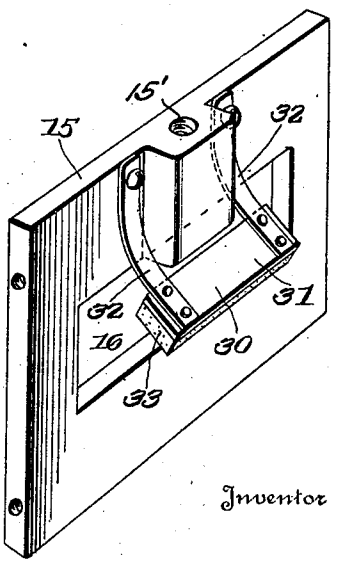


Fig. 4.

Fig. 5.



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Patented Dec. 19, 1922. 1,439,370

UNITED STATES PATENT OFFICE.

LOUIS A. LAMBERT, OF ROME, NEW YORK.

METAL-BUR FILER.

Application filed September 28, 1920. Serial No. 413,305.

To all whom it may concern:

Be it known that I, LOUIS A. LAMBERT, a citizen of Canada, and a resident of the United States, residing at Rome, in the county of Oneida, State of New York, have invented certain new and useful Improvements in Metal-Bur Filers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to metal smoothing or bur filing machines, and aims primarily to provide a device of comparatively simple construction and ready adjustment for trimming the raw or burred edges of metal strips after the latter have been cut in the sawing operation; a machine obviating the tedious work heretofore performed manually.

A further object of the invention is to provide a machine of the character stated which is constructed in such manner as to be adaptable to metal strips of various widths and thicknesses, being equipped with means of an improved nature for setting or maintaining the cutting of smoothing edges in proper position.

A still further object of the invention is to provide means in connection with power operated metal strip feeding mechanism for trimming the edges of the metal carried through the machine, the device being featured by means of an improved nature for properly aligning the cutters with the power feeding mechanism, whereby distortion of the metal strips is obviated and danger of the machinery becoming jammed is overcome.

A still further object is to provide cutting or scraping means of such construction that the smoothing edges thereof, while performing their functions properly in operating upon the metal, are at all times protected and undue pressures upon the same are overcome.

With these objects in view, together with others which will appear as the description proceeds, the invention consists in the novel construction, combination, and arrangement of parts, all as will be described more fully hereinafter, illustrated in the drawing, and particularly pointed out in the claims.

In the drawing:

Figure 1 is a front elevation of a metal smoothing or filing machine constructed in accordance with the invention,

Figure 2 is a vertical sectional view taken upon line 2—2 of Figure 1,

Figure 3 is a top plan view of the improved machine,

Figure 4 is a detail view of one of the cutters, and

Figure 5 is a detail view of the rear plate of the machine and showing the arrangement of the wiper thereon.

In carrying out the invention, the improved mechanism is associated with the drawing rolls of any approved type or construction for advancing the metal strips to be filed. In the present instance the upper and lower rolls 6 and 7 respectively are arranged in the housing 8 constituting the body of the machine. The upper roll is urged toward the lower roll by means of the expansion springs 9; the latter bearing at their lower ends upon the vertical moving bearing block 10 of the upper roller, and said springs engage at their upper ends against the sleeves 11 carried by the threaded stems 12 constituting adjusting members. The journals of the rollers may be intergeared as at 13, and motion is imparted to one of the rolls through the instrumentality of the belt wheel or pulley 14.

The forward end of the body is provided with a vertically disposed wall or plate 15, having a central aperture 16 through which metal strips pass before being engaged by the rolls.

Arranged in spaced parallel relation upon the exterior of plate 15 and disposed vertically at the outer edges thereof are guides 17, between which is arranged the slidable frame 18. This frame is caused to move upwardly or downwardly in its guides by means of the screw 19, the latter being loosely rotatable in the fork 18′ at the upper end of the plate 18 and passing through a nut 20 and into a socket 15′ in the plate 18. The plate 18 is provided with a central opening through which the metal strips pass and adjustable scrapers are arranged upon the said frame so as to be adjustable toward or away from each other and adjacent to the said opening in the frame. These cutters are adapted to engage the rough edges of the metal strip as it is drawn into the body of the machine by the rolls heretofore described.

Each of the scraping members comprises a blade 21 and a guard 22. A blade is formed of suitable metal, preferably of rectangular

formation, and is provided at one end with scraping edges 23. In the present instance these edges are formed by making a notch of substantially V-shape in the end of the blade, the interior faces of the V-notch being beveled away so as to provide straight sharp scraping edges next to the exterior surfaces of the blades. Each blade is provided in its exterior face with a central longitudinal rib 24, the edges of which are parallel with the lateral edges of the blade. This rib extends snugly into a recess or channel of corresponding shape and size in the inner face of the guard 22. The guard is preferably coextensive with the blade, and is provided with a V-notch at one end corresponding to the similarly shaped notch in the blade and having its walls disposed at substantially the same angle. The guard is provided with a longitudinally disposed slot, through which extends a screw or bolt 25, the inner end of the bolt being threaded into the blade. By this construction the guard may be adjusted longitudinally of the blade so as to dispose the inner faces to the inclined walls of its notch properly with respect to the scraping edges of the blade, and when such adjustment has been made the plate and guard are firmly held against relative movement by tightening the bolt 25. The most beneficial results are obtained by adjusting the guard so that the walls of its notch only expose a very narrow portion of the cutting edge of the blade, and it is obvious, therefore, that in addition to reinforcing and protecting the cutting edges of the blade, the guard operates as a guide for the metal strip moving into the machine.

The supporting means for the cutters, in the present instance, includes a guide or trackway indicated at 26, the latter being disposed transversely upon the exterior of frame 18 and substantially in alignment with the lower edge of the opening in the said frame through which the metal strip passes. This guide or trackway receives and supports the lower longitudinal edge of each of the blades. The upper longitudinal edge of each blade is beveled as shown, and blocks 27 having correspondingly inclined lower edges are arranged upon the frame in substantial alignment with the upper edge of the strip receiving opening in the latter; the said blocks overlying the adjacent edges of the blades and acting as guides. These blocks are adjustable toward and away from the frame 18, so that the cutters may be moved freely within the guides when the blocks are loosened, and when the blocks are clamped firmly down upon the supporting frame, the overhanging edges of the blocks will cause the upper edges of the blades to be firmly clamped against the face of the frame, whereby movement of the cutters will be prevented. The clamping means for these blocks, in the present instance, comprise screws or bolts indicated at 28.

The upper edges of the blocks 27 are beveled inwardly toward the face of the frame, and engage the correspondingly inclined lower face of strip 29 secured to the face of the frame. By this construction it is obvious that when the screws or bolts 28 are tightenend, the blocks 27 will be caused to wedge between the upper edges of the blades and the lower edge of strip 29.

In order that the surface of a strip will be cleaned of metal dust after passing through the scraper, a wiper 30 is provided. This wiper includes a plate 31 of suitable length, yieldably held by spring arms 32 upon the rear face of the front plate 15 of the machine. The lower face of the plate 31 is provided with a wiper pad 33, formed of any suitable material. The arms 32 maintain the lower portion of the wiper member in such position that it will rest upon a strip of metal passing into the machine and toward the rolls. This action of the wiper will free the strip of any dirt, grit, or metal particles.

In operation, the blocks 27 are loosened so that the blades may be freely moved within their guides. The blades are set a distance apart sufficient to permit the metal strip to pass between the opposed V-notches in the blades, with the scraping edges of the notched portions barely touching the longitudinal edges of the strip. When this adjustment has been made, the bolts or screws 28 are tightened so as to firmly clamp the blades in position. It will be understood, of course, that prior to operation of the machine the guards 22 will have been adjusted upon their respective blades as has been before mentioned. The metal strip is passed into the machine until the forward end thereof passes between the rolls 6 and 7, and rotation of these rolls in the manner described will cause the strip to be passed through the body of the machine and out at the rear thereof. Adjustment of the screw 19 will cause the blade carrying frame to be raised and lowered as the case requires, and these adjustments may be minutely governed by the means employed.

By making the cutting edges of these scrapers in the form of V-notches, it is obvious that metal strips or plates of various gauges may be trimmed in the machine without the requirement of specially constructed cutters.

While the foregoing is a description of the preferred embodiment of the invention, it will be understood, that the invention is not necessarily restricted thereto, as various changes in the details of construction and arrangement of parts may be resorted to without departing from the spirit of the invention as defined by the claims.

What I claim is:

1. In a metal smoothing machine, a body, a frame on said body having an opening to receive a travelling strip of metal, a trackway on said frame near the lower edge of said opening, blocks near the upper edge of said opening adjustable toward and away from said frame, scrapers resting in said trackway and slidable toward and away from said opening, and an overhanging portion on each of said blocks to engage over the upper edges of said scrapers and to engage the edges of the latter.

2. In a metal smoothing machine, a frame through which a metal strip passes, guides upon said frame, blades arranged on said guides and adapted to move toward and away from the edges of the strip, the edges of said blades being beveled, blocks constituting one of said guides and having beveled edges overlying the adjacent edges of the blade, a strip having a beveled edge and against which the upper edges of the block engage, and screws passing through said blocks and into said frame.

3. In a metal smoothing machine, a body, metal drawing rolls in said body, a plate at one end of said body having an opening through which a strip of metal passes, a frame adjustably mounted upon said plate, the said frame having an opening to align with the opening in said plate, scrapers carried by said frame, a screw on said plate, a nut on the frame to receive said screw, whereby rotation of the screw will control the movement of the frame, and a wiper yieldably supported by the plate between the latter and the rolls and adapted to press upon the metal strip passing through the plate.

4. In a cutter for metal smoothing machines, a blade having a V-notch in the end thereof, and walls of said notch being sharpened to provide scraping edges, a rib extending centrally and longitudinally of said plate and upon the outer face thereof, a guard having a longitudinal recess in one face to receive said rib, one end of said guard having a V-notch corresponding to the notch in said plate, the said guard having a longitudinal slot, and a screw member extending through said slot and into said plate.

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

LOUIS A. LAMBERT.

Witnesses:

JAY D. NOBLE,

JOHN T. HUMPHREY.