No. 894,398. PATENTED JULY 28, 1908.

H. B. ROUSE.

PRINTER'S RULE AND LEAD CUTTER.

APPLICATION FILED APR. 29, 1907.

2 SHEETS—SHEET 1.

Fig. 1

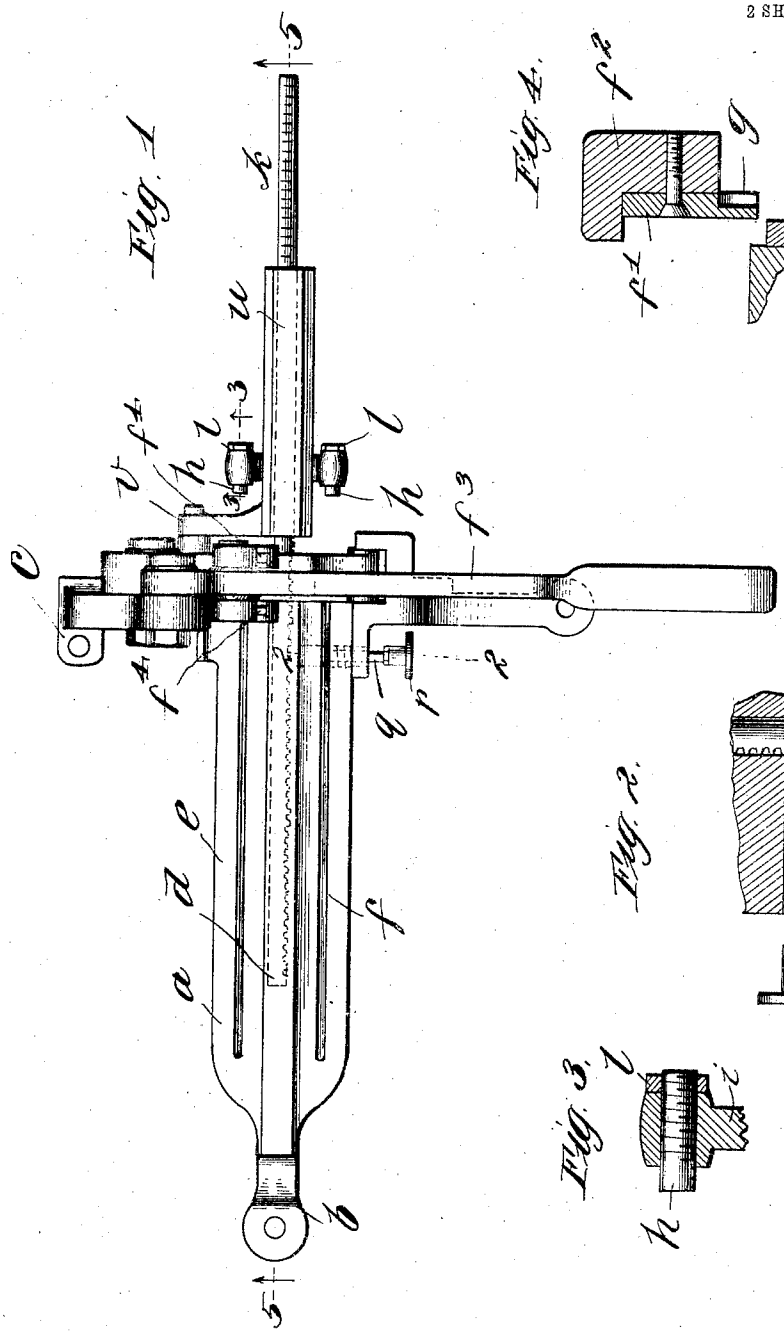


Fig. 4.

Fig. 2.

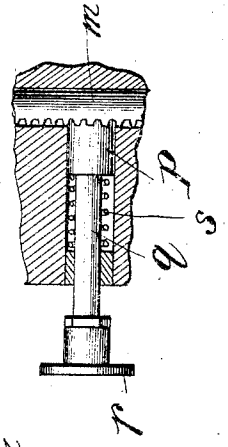


Fig. 3.

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2 SHEETS—SHEET 2.

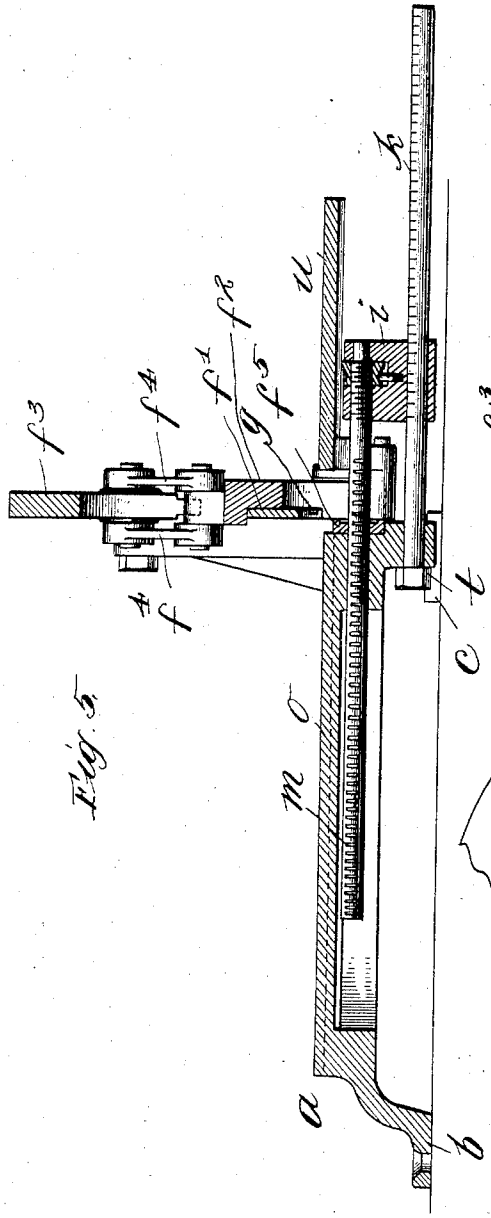


Fig. 5.

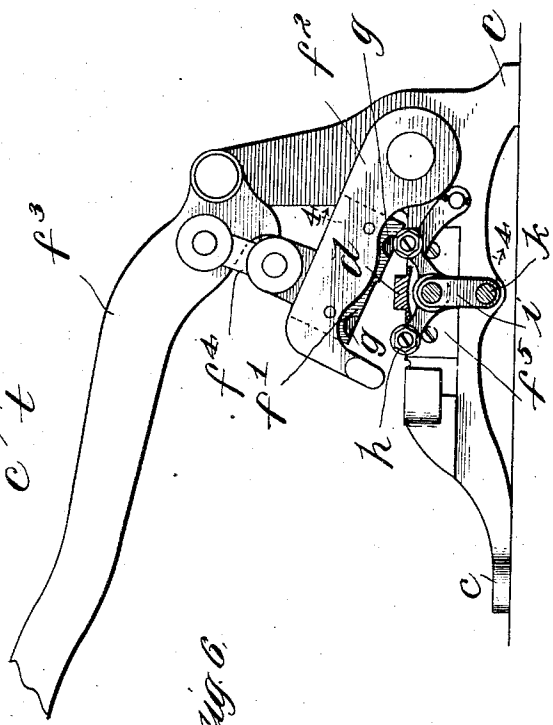


Fig. 6.

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UNITED STATES PATENT OFFICE.

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PRINTER'S RULE AND LEAD CUTTER.

No. 894,398. Specification of Letters Patent. Patented July 28, 1908.

Application filed April 29, 1907. Serial No. 370,869.

To all whom it may concern:

Be it known that I, HARRY B. ROUSE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Printers' Rules and Lead Cutters, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to methods for cutting sheet metal, and is of particular service in connection with rule and lead cutters for printers' purposes.

The invention has a number of objects and advantages which will be well understood by reference to the accompanying drawings, showing the preferred embodiment of the invention, the invention, in its broad and specific aspects, being discernible from the drawings, the description thereof, and the appended claims, and though I prefer the embodiment illustrated in the drawings, it is to be understood that I do not limit myself thereto.

In the drawings—Figure 1 is a plan view of a sheet metal cutter as it is preferably embodied in accordance with my invention. Fig. 2 is a sectional view on line 2 2 of Fig. 1. Fig. 3 is a sectional view on line 3 3 of Fig. 1. Fig. 4 is a sectional view on line 4 4 of Fig. 6. Fig. 5 is a longitudinal sectional view on line 5 5 of Fig. 1. Fig. 6 is a front end view of my improved mechanism.

Like parts are indicated by similar characters of reference throughout the different figures.

The body or frame *a* of the machine is supported at the rear upon a leg *b* and at the front upon the legs *c*, *c*, which legs are preferably bolted to a suitable foundation or work bench. Said body is provided with a rib *d*, in the preferred embodiment of the invention, so that, as is preferable, a resting surface may be provided upon either side of said rib for the purpose of holding a strip of sheet metal, the machine being preferably adapted to shear strip metal that may be readily sheared and to chop sheet metal that may not readily be sheared.

In the embodiment of the invention shown, the rear resting surface *e* is designed to hold such metal as brass, while the forward resting surface *f* is designed to hold such metal as lead or lead alloy. A knife f^1 is mounted upon a swinging arm f^2, this arm f^2 being united with an operating arm f^3 by means of a toggle joint f^4. The knife f^1 has its cutting edge lying in the plane that contains the end face of a lower knife f^5. The rear portion of the upper knife blade f^1 is, with the corresponding portion of the lower knife blade f^5, designed to have shearing action upon the strip metal fed over the surface *e* while the forward edge of the upper blade f^1 is with the corresponding portion of the blade f^5, designed to have chopping action upon the strip metal fed over the surface *f*. The portion of the structure thus specifically described is not in itself novel. However, I have provided an improvement upon the construction thus far described, which resides in providing recesses *g* in the knife blade f^1 adapted to receive the gage stops *h* movable bodily longitudinally of the machine, and against which the strip metal is rested in the cutting operation, the distance between said gage stops and the end surface of the lower knife blade f^5 being the length of the portions of strip metal cut off by the machine. By providing the blade f^1 with the gage stop receiving recesses *g*, said blade f^1 may be made as thick as is desired for purpose of strength and durability, while at the same time the thickness of the said blade does not unduly limit the approach of the gage stops to the cutting edges of the blades f^1, f^5. By this construction a very strong upper cutting blade may be produced whose strength is not materially impaired by the recesses *g*, and yet which permits exceedingly short lengths of strip metal to be cut from the stock as it is fed through the machine.

The stops *h*, *h* (there being preferably two stops, though I do not wish to be limited to a machine which is both adapted to shear and chop metal) are mounted upon a cross-head *i* that is adapted to be moved adjustably along a supporting rod *k*. Another feature of my invention resides in making the said stops adjustable longitudinally of the supporting rod *k*, so as accurately to determine the exact length of the metal strips that are to be cut.

In the preferred embodiment of the invention, the stops *h*, *h* are desirably in

the form of rods or posts extending longitudinally, and are so mounted within the cross-head as to be bodily movable longitudinally. The preferred mounting of the posts h, h within the cross-head i is afforded by threading the said posts into the cross-head, as indicated most clearly in Fig. 3, it being possible to effect a longitudinal adjustment of said posts by turning the same, as will be apparent, the adjustment after having been obtained, being secured by means of the set-nuts l. The cross-head i is secured to a sliding rod m in some such manner as that indicated in Fig. 5, for example. In the construction shown in Fig. 5, the connection between the cross-head and rod m is adjustable, so that after the cross-head has been moved along the rod k to secure an approximate adjustment, a more delicate adjustment may be secured by causing the cross-head to have its position changed with respect to the rod m. While the adjustable connection indicated at n is not novel with me so far as this application is concerned, yet the structure as outlined permits a more ready use of the adjustable connection n, inasmuch as the index line may be located within plain sight where desired.

The rod m is provided with a series of teeth o which normally engage the teeth provided upon a plunger or plunger block p, which plunger block is provided with a stem q that projects through the body of the machine and terminates in a gripping head r. A spring s is housed in the body of the machine and surrounds the stem q, and, by engaging the tooth block p, forces the teeth of said block into engagement with the teeth o. Suitable means are provided for preventing the rotation of the block p.

When it is desired to shift the gage stops h, h, the block p is withdrawn by grasping the head r and pulling outwardly. When the block p is thus withdrawn, the rod m may be shifted to any selected position, whereafter the head r may be released to secure the rod m in the selected position. The rod k, along which the cross-head slides in securing this adjustment, may be provided with suitable scale marks as indicated in Fig. 5, to indicate the position to which the cross-head is to be placed, these scale marks having suitable designations in association therewith to show the distance between the gage stops and the cutting edges of the knives. These scale marks bear a definite relation to the teeth o so that a cross-head may be shifted along the rod k to a position thereon warranted by the scale marks, whereafter the head r may be released, whereupon the spring s will force the teeth upon the block p into engagement with the teeth o upon the rod m, whereby the selected position for the cross-head i and the stops h is maintained. If this adjustment is to be modified, such modification may be effected by manipulating the device n, which in itself is old in the art, the posts h preferably not being moved for the purpose of securing this modification of adjustment, but being desirably merely adjusted in order to compensate for wear.

The guiding rod k is tightly fitted within the body of the machine as indicated most clearly in Fig. 5, and is rigidly secured thereto with the aid of a fastening nut t. This rod, in effect, therefore, constitutes a rigid extension of the body of the machine.

The rod m slips through an elongated opening in the body of the machine, the portion of the machine thus engaging said rod serving to maintain the stem in line without regard to the position of said rod respecting the body of the machine. The portion of the machine body thus in direct association with the rods k and m, the rods k and m, and the cross-head i, form the four sides of a rectangle, the length of which rectangle depends upon the position of the cross-head, and therefore upon the portions of the rods k and m intervening between the cross-head and the portions of the body of the machine where engagement between the rods k and m and said body ceases. The members of this quadrilateral or rectangular structure coöperate to maintain the rods k and m in parallelism and to prevent said rods from sagging, so that the gage stops h, h are always held in their proper plane with respect to the cutting edges of the blades f^1, f^5 notwithstanding the extent, within the limits of the machine, to which the cross-head i is withdrawn. In this way the adjustment of the cross-head i always accurately corresponds to the scale upon the rod k, as the posts or stops h are not permitted to sag. Hitherto the posts have been permitted to sag, particularly when the cross-head has been withdrawn a considerable distance within the operating limits of the machine, which sagging obviously would cause a nonconformity between the lengths of the strip metal that are cut and the adjustment of the machine.

I have illustrated a rest u which may be of particular service when the cross-head is withdrawn a considerable distance from the body of the machine. This rest is mounted upon a pivoted arm v, so that it may be thrown to one side, particularly when the cross-head is closely approached to the body of the machine. This rest u is old in the art.

It will be seen that I have provided a device including a movable blade, a companion blade, a gage stop, a mounting for the gage stop in threaded adjustable connection therewith, whereby the gage stop is movable toward and from the knives with respect to its mounting, the mounting itself

being adjustable toward and from the blades, and a bed for holding material to be cut having a material supporting surface located in line with the gage stop. The gage stop, by being located in line with the material supporting surface of the bed, serves to define the extent to which the material may be fed along the bed, whereby the lengths of the material cut are quickly determined. The sub adjustment of the gage stop with respect to its mounting is not often employed by the user but is of much importance to the manufacturer.

While I have herein shown and particularly described the preferred embodiment of my invention, I do not wish to be limited to the precise construction shown, but,

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

1. A device of the class described including the body or frame of the device, a rod or extension projecting therefrom, a cross-head slidable upon said rod or extension and provided with a gage stop, a second rod to which the cross-head is secured and slidable longitudinally in the body or frame of the machine, and knives toward and from which the cross-head may be moved along the first mentioned rod or extension.

2. A device of the class described including a body or frame of the device, a rod or extension projecting therefrom, a cross-head slidable upon said rod or extension and provided with a gage stop, a second rod to which the cross-head is secured and slidable longitudinally in the body or frame of the machine, knives toward and from which the cross-head may be moved along the first mentioned rod or extension, and means for securing the cross-head in its adjusted position.

3. A device of the class described including the body or frame of the device, a rod or extension projecting therefrom, a cross-head slidable upon said rod or extension and provided with a gage stop, a second rod to which the cross-head is secured and slidable longitudinally in the body or frame of the machine, knives toward and from which the cross-head may be moved along the first mentioned rod or extension, and means for locking the rod that is secured to the cross-head in the position to which it is moved, whereby the position of the cross-head may be secured.

4. A device of the class described including the body or frame of the device, a rod or extension projecting therefrom, a cross-head slidable upon said rod or extension and provided with a gage stop, a second rod to which the cross-head is secured and slidable longitudinally in the body or frame of the machine, a scale being provided upon the first aforesaid rod or extension, a locking device for holding the second rod in position of adjustment, said second rod being formed to coöperate with said locking device to afford predetermined positions of the second rod when held by said locking device, and knives toward and from which the cross-head may be moved along the first mentioned rod or extension.

5. A device of the class described including the body or frame of the device, a rod or extension projecting therefrom, a cross-head slidable upon said rod or extension and provided with a gage stop, a second rod to which the cross-head is secured and slidable longitudinally in the body or frame of the machine, a scale, a locking device for holding the second rod in position of adjustment, said second rod being formed to coöperate with said locking device to afford predetermined positions of the second rod when held by said locking device, and knives toward and from which the cross-head may be moved along the first mentioned rod or extension.

6. A device of the class described including the body or frame of the device, a rod or extension projecting therefrom, a cross-head slidable upon said rod or extension and provided with a gage stop, a second rod to which the cross-head is secured and slidable longitudinally in the body or frame of the machine, a scale being provided upon the first aforesaid rod or extension, a locking plunger for holding the second rod in position of adjustment, said second rod being toothed to coöperate with said locking plunger to afford predetermined positions of the second rod when held by said locking plunger, and knives toward and from which the cross-head may be moved along the first mentioned rod or extension.

7. A device of the class described including the body or frame of the device, a rod or extension projecting therefrom, a cross-head slidable upon said rod or extension and provided with a gage stop, a second rod to which the cross-head is secured and slidable longitudinally in the body or frame of the machine, a scale, a locking plunger for holding the second rod in position of adjustment, said second rod being toothed to coöperate with said locking plunger to afford predetermined positions of the second rod when held by said locking plunger, and knives toward and from which the cross-head may be moved along the first mentioned rod or extension.

8. A device of the class described including a movable blade, a companion blade, an actuating arm holding the movable blade, and a gage stop adjustable toward and from the blades, the movable blade being interposed between the companion blade and said stop, said movable blade being recessed

to receive said stop when adjusted close to said blades, whereby the strength of the movable blade need not be impaired to secure a close adjustment of the stop, the material of the arm being absent from the path of the gage stop, whereby said gage stop is adapted to have access to the recess in the movable blade, so that very close adjustment of the stop toward the stationary blade may be secured.

In witness whereof, I hereunto subscribe my name this 19th day of April A. D., 1907.

HARRY B. ROUSE.

Witnesses:

G. L. CRAGG,

LEON G. STROH.