No. 735,332. PATENTED AUG. 4, 1903.

J. L. BACKUS.

METAL CUTTING MACHINE.

APPLICATION FILED JULY 14, 1902.

NO MODEL.

Fig. 1.

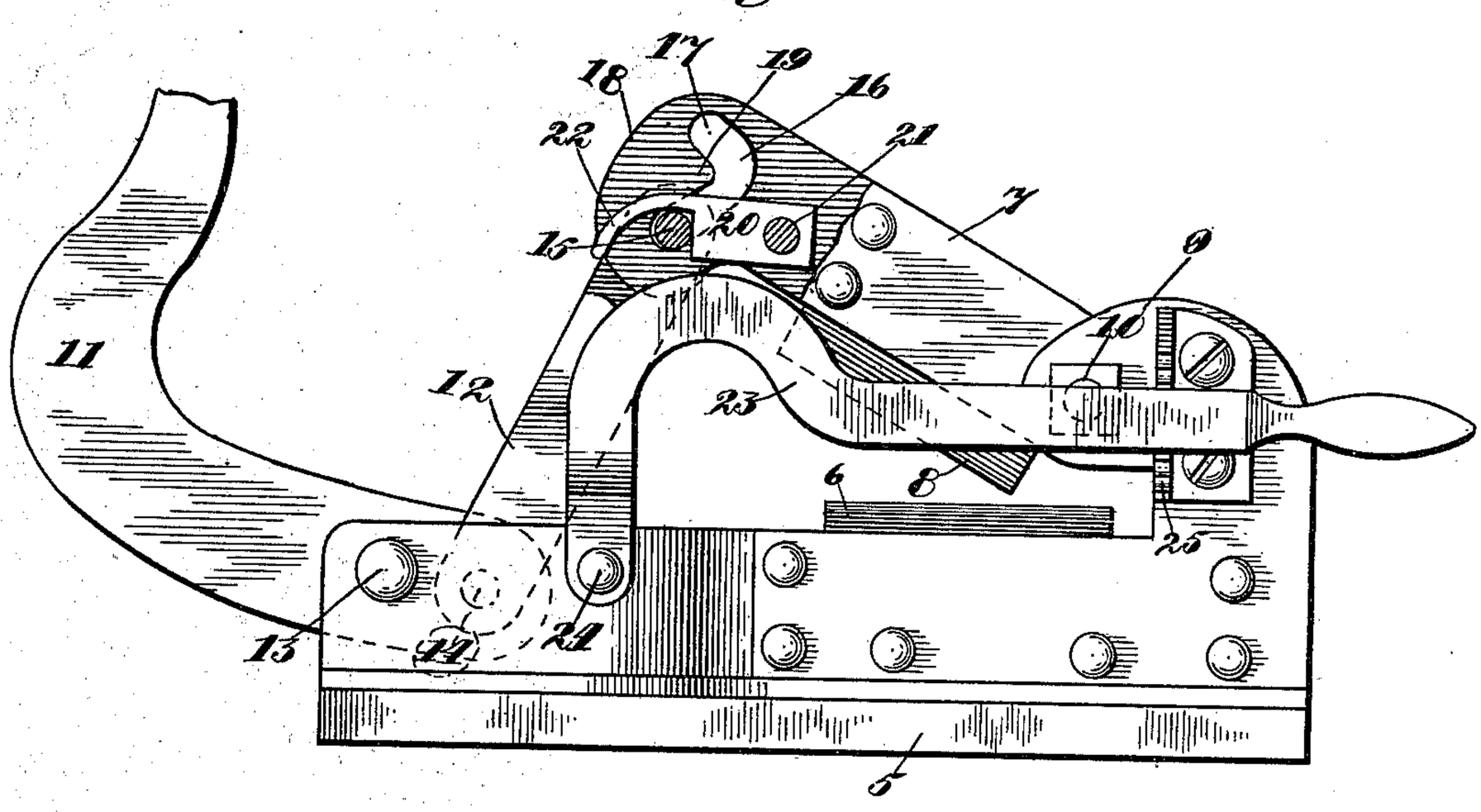


Fig. 2.

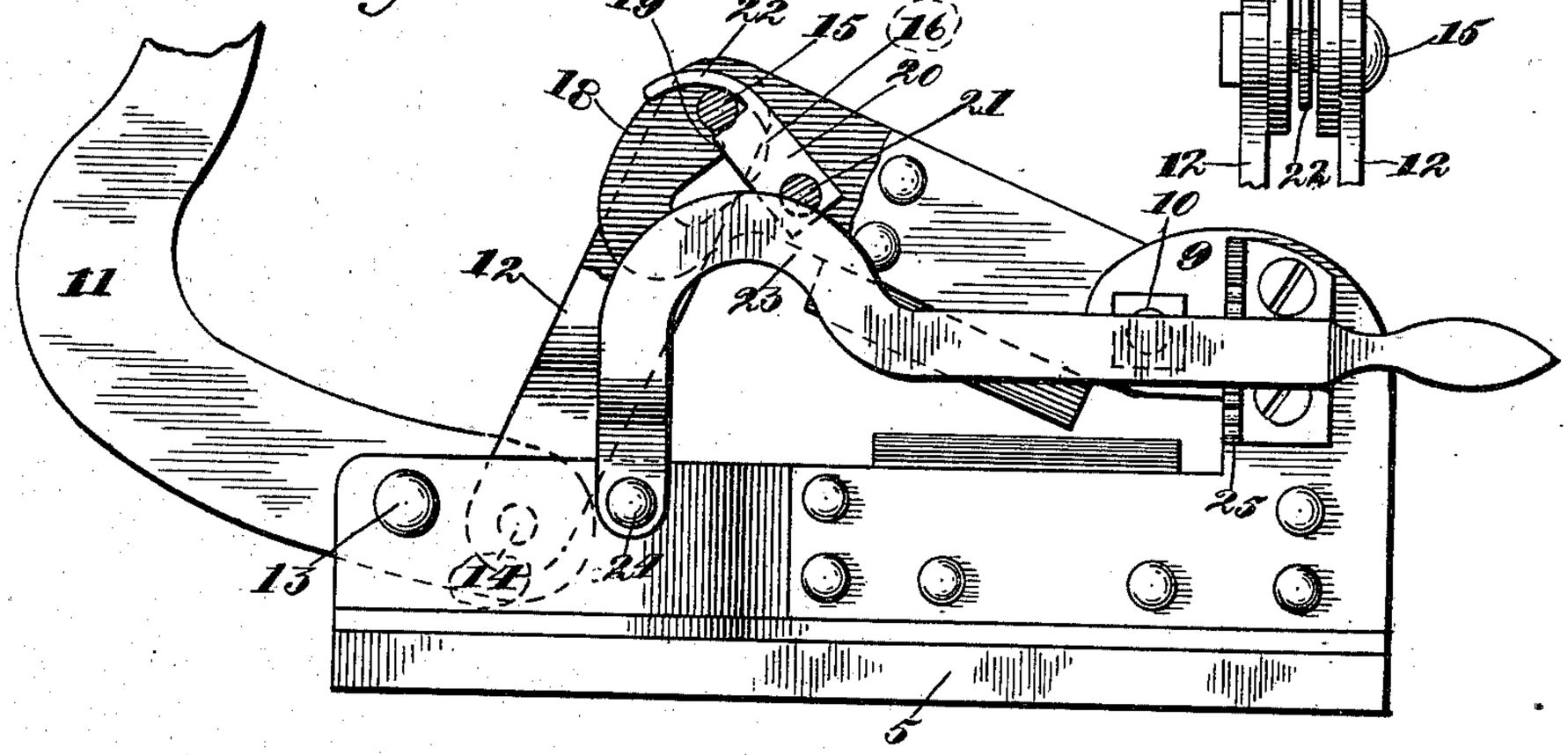
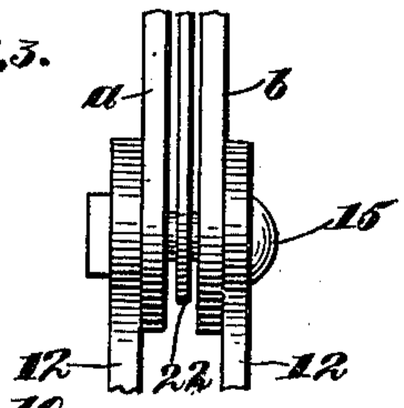


Fig. 3.



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No. 735,332. Patented August 4, 1903.

UNITED STATES PATENT OFFICE.

JAMES L. BACKUS, OF AURORA, ILLINOIS.

METAL-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 735,332, dated August 4, 1903.

Application filed July 14, 1902. Serial No. 115,495. (No model.)

To all whom it may concern:

Be it known that I, JAMES L. BACKUS, a citizen of the United States, residing at Aurora, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Metal-Cutting Machines, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to machines for cutting metal, and particularly to machines for that purpose in which the cutting is done by a movable cutting-blade carried by a swinging arm which is operated by means of a lever, the movable blade coacting with a stationary blade to sever the metal. A machine of this character is illustrated and described in patent to E. W. Backus and myself, No. 188,089, dated March 6, 1877.

The object of my invention is to provide means by which the connection between the operating-lever and the swinging arm may be adjusted quickly and without the necessity of removing any of the parts, as has heretofore been the case. Heretofore it has been customary to connect the operating-lever with the free end of the swinging arm by a link, the parts being secured together by means of a bolt and adjustment provided for by means of a plurality of bolt-holes either in the link or in the member to which it was attached. This necessitated the removal of the bolt when adjustment was made and was objectionable because of the time required for the operation. My invention provides for the adjustment of the connection instantly without the removal of any of the parts.

I accomplish the object of my invention as hereinafter described and as illustrated in the drawings.

That which I regard as new is set forth in the claims.

Referring to the accompanying drawings, Figure 1 is a partial side elevation, some parts being in section, illustrating the connecting devices in one position. Fig. 2 is a similar view illustrating the connecting devices in another position, and Fig. 3 is an end view of parts of the connecting devices.

In the drawings, 5 indicates the base of the machine, which is of suitable construction to support the parts thereof.

6 indicates the stationary cutting-blade.

7 indicates a swinging arm which carries the movable cutting-blade 8. Said arm 7 is pivoted at one end to an upwardly-projecting portion 9 of the frame, preferably by a bolt 10.

11 indicates the operating-lever, and 12 a pair of links by which it is connected with the swinging arm 7. As shown in Fig. 1, the lever 11 is mounted on a pivot 13 near the inner end thereof and is connected to the links 12 by a pin 14, which lies between the pivot 13 and the inner end of the lever. The links 12 carry at their opposite ends a pin 15, which passes through a slot 16 in the outer portion of the swinging arm 7, as best shown in Fig. 1. As shown, the slot 16 is somewhat U-shaped, the upper and lower ends thereof, which are marked 17 and 18, respectively, lying nearer the adjacent end of said arm than the intermediate portion of said slot, so that an inwardly-projecting lug or shoulder 19 is formed between the two ends of said slot. It is evident, therefore, that when the pin 15 lies in one end or the other of the slot 16 in order to move out of its position it must move away from the free or outer end of said swinging arm and that by preventing it from so moving it may be held securely in position. For the purpose of locking the pin 15 in one end or the other of said slot 16 a dog 20 is provided which is mounted on a pivot 21, carried by the swinging arm 7 between the slot 16 and the inner end of said arm, said dog being adapted to swing down between the pin 15 and the pivot 21 when said pin lies in either end of said slot 16, as illustrated in Figs. 1 and 2, thereby preventing the pin 15 from moving farther from the outer end of the swinging arm 7 and consequently locking it in position. The dog 20 carries a finger-piece 22, which projects far enough so that access may readily be had to it for throwing the dog 20 into or out of operative position. In the construction shown the finger 22 projects slightly beyond the outer end of the arm 7, which is shown as being formed of two members *a b* bolted together. (See Fig. 3.) The pin 15 is preferably in the form of a bolt, so

that when it is desired to take the machine apart it may be readily accomplished; but the adjustment of the connection between the lever 11 and swinging arm 7 does not require the removal of the pin 15.

While I regard the construction illustrated as the best embodiment of my invention, I do not wish to be limited to the specific arrangement shown, as the parts may be oppositely arranged—that is to say, the slot 16 may be curved in the opposite direction, so that the lug 19 projects oppositely, in which case the dog 20 would be arranged at the opposite side of the slot, but the construction shown is preferable because it provides for locating the pin 15 nearer the outer end of the swinging arm 7. Furthermore, if desired, the slot 16 with the locking mechanism might be placed in the lower end of the operating-lever instead of in the swinging arm, but the fulcrum of the operating-lever remaining the same—that is to say, the operating-lever is fulcrumed in the same manner as hereinbefore set forth.

The modified arrangements suggested are self-evident and therefore are not illustrated.

In the drawings I have shown a bar 23, the function of which is to hold down the outer portion of the metal piece being cut, said bar being pivoted at 24 to the base of the machine and having on its inner face a tooth (not shown) adapted to engage the teeth of a rack 25, carried by the projecting portion 9 of the frame, so that said bar 23 may be vertically adjusted to accommodate strips of metal of different thicknesses. This device, however, forms no part of the invention claimed herein.

While I have applied the term "curved" to the slot 16, it is evident that the term is used in a generic sense to imply that the slot does not extend in a right line from one of the positions of the pin to another and as used herein it should be understood as including any slot so shaped as to make it necessary for the pin to move laterally or out of a right line in passing from one of its positions in the slot to another whether such form be secured by a curved or by an angular configuration.

My improved connecting device while designed primarily for a metal-cutting machine may be applied to other devices.

That which I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of a swinging arm provided with a slot, an operating-lever mounted upon a fixed pivot, and a link pivoted to the lever and engaging in the slot of the arm for forming a variable connection between the lever and arm.

2. The combination of a swinging arm having a curved slot near its outer end, a lever for operating said swinging arm, a link connected to said lever, a pin carried by said link and adapted to move in said slot, and locking means for preventing lateral movement of said pin in said slot, substantially as described.

3. The combination of a swinging arm having a curved slot near its outer end, a lever for operating said swinging arm, a link connected to said lever, a pin carried by said link and adapted to move in said slot, and a pivoted dog carried by said swinging arm and adapted to move between said pin and the pivot of said dog, to prevent lateral movement of said pin in said slot, substantially as described.

4. The combination of a swinging arm having a curved slot near its outer end, a lever for operating said swinging arm, a link connected to said lever, a pin carried by said link and adapted to move in said slot, and a pivoted dog carried by said swinging arm and adapted to move between said pin and the pivot of said dog, to prevent lateral movement of said pin in said slot, said dog having a projecting finger, substantially as described.

5. The combination of a swinging arm having a curved slot near its outer end, an inwardly-projecting lug between the ends of said slot, a pivoted operating-lever, a link connecting said lever with said swinging arm, said link having a pin adapted to move in said slot, and a locking device carried by said arm, for preventing said pin from moving in said slot by said lug, substantially as described.

6. The combination of a swinging arm having a curved slot near its outer end, an inwardly-projecting lug between the ends of said slot, a pivoted operating-lever, a link connecting said lever with said swinging arm, said link having a pin adapted to move in said slot, and a pivoted dog carried by said swinging arm, said dog being adapted to move between said pin and the pivot of said dog, to prevent said pin from moving by said lug when the pin lies in either end of said slot, substantially as described.

JAMES L. BACKUS.

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