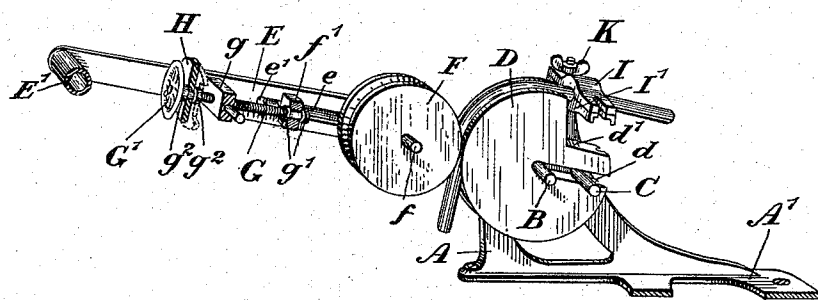
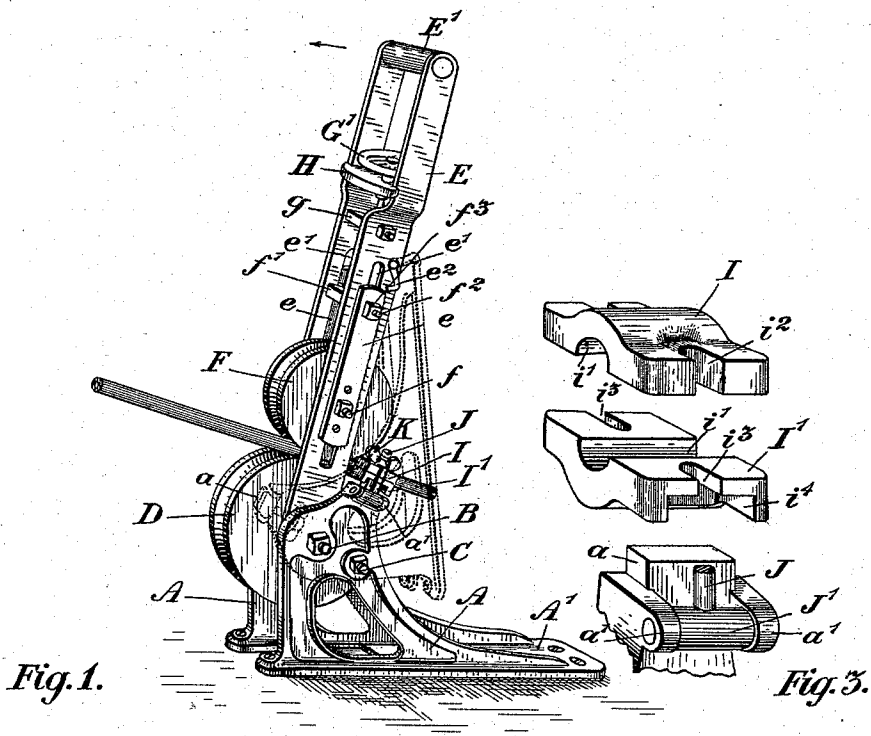


(No Model.)

T. SEATON, Sr.
PIPE BENDER.

No. 528,036.

Patented Oct. 23, 1894.



Witnesses.

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UNITED STATES PATENT OFFICE.

THOMAS SEATON, SR., OF TORONTO, CANADA.

PIPE-BENDER.

SPECIFICATION forming part of Letters Patent No. 528,036, dated October 23, 1894.

Application filed July 26, 1894. Serial No. 518,625. (No model.)

To all whom it may concern:

Be it known that I, THOMAS SEATON, Sr., steam-fitter, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Pipe-Benders, of which the following is a specification.

My invention relates to improvements in pipe benders and the object of the invention is to design a simple, efficient, strong and compact machine by which pipe of different metals and of different diameters may be given a uniform bend when cold of any desired radius without materially affecting the strength of the pipe or causing it to pucker or become of less diameter and it consists essentially in providing a stationary grooved wheel journaled in a suitable standard and a movable grooved wheel capable of rotation, journaled in a swinging arm pivoted on the central bolt upon which the stationary grooved wheel is supported, means being provided for adjusting the movable grooved wheel longitudinally, for holding one end of the pipe firmly in position while being bent, and for folding the machine into compact shape for transportation, the machine being otherwise constructed and arranged in detail as hereinafter more particularly explained.

Figure 1, is a perspective view of my machine complete with the pipe inserted in position ready to be bent. Fig. 2, is a perspective view partially in cross section showing one side of the machine removed. Fig. 3, is a detail view showing the holding blocks and the manner in which they are connected together, and to the top of the standard.

In the drawings like letters of reference indicate corresponding parts in each figure.

A, A, are the standards formed of suitable size and shape and connected together at the bottom by the bed-plate, A'.

B, is a bolt which extends through the upper portion of the standard near the front thereof.

C, is a bolt which extends through between the standards, A, A, to the rear of the bolt, B.

D, is the stationary grooved wheel, the groove of which is of a size corresponding to the arc of the pipe, which is to be bent.

The wheel, D, has a slot, *d*, cut in it from the center to the periphery. When the wheel,

D, is placed in position the bolts, B, and, C, extend through the slot as indicated in Fig. 2, and thereby support the wheel. 55

d', is a segmental recess cut out of the grooved wheel, D, as shown.

E, E, is a double arm which is connected together at the top by the handle, E', and at the bottom is journaled upon the bolt, B. 60

F, is the upper movable wheel the groove of which corresponds to the groove of the lower stationary wheel, D.

The grooved wheel, F, is shown smaller in diameter than the grooved wheel, D, and is journaled upon the bolt, *f*, which extends into side bars, *e, e*, located to the outside of the slots, *e', e'*, made longitudinally in the double arm, E, E. 65

f', is a cross bar, which is of greater width than the slots, *e', e'*, in the double arm, E, E, but has reduced ends, *f²*, which extend through the slots, *e', e'*, into the bars *e, e*. The reduced ends, *f²*, are threaded and have nuts, *f³*, on them so as to hold the side bars, *e, e*, close to the double arm, E, E. 75

g, is a cross bar secured within the double arm, E, E, and G, is a threaded spindle, which is screwed through the cross bar, *g*. The lower end of the spindle, G, has no thread on it but has two collars, *g', g'*, by which the lower end is retained within the cross bar, *f'*. The upper end of the screw spindle, G, has a double collar, *g², g²*, which abuts both sides of the protecting plate, H. 80

G', is a hand wheel, which is secured at the top of the screw spindle. 85

It will be seen that by means of the screw spindle connected to the side bars, *e, e*, by the cross bar, *f'*, that the movable wheel, F, may be adjusted longitudinally either away from or close to the wheel, D, according as to whether it is desired to place the pipe in position or bring the wheels, F, and D, to abut each other in order to make the bend. 95

I, I', are the upper and lower blocks which have a cylindrical hole formed between them by the arc-shaped portions, *i, i'*. The ends of these holding blocks, I, I', have notches, *i², i²*, respectively. The lower block, I', has recesses, *i³*, at the bottom at each end which when placed in position fit over the rectangular projection, *a*, formed at the top of the standards, A, A. 100

J, is a swing bolt, the trunnion portion, J', of which is pivoted within the bosses, a', formed on each standard, A, to the outside. The upper end of each swing bolt, J, is threaded and is preferably provided with a butterfly nut, K.

It will now be understood that by placing the block, I', in position so that the recesses, i', at each end fit over the projections, a, at the top of the standards, A, the pipe may be placed in position in the hole, i'. The upper block, I, may then be placed on top of the block, and the swing bolts thrown into the slots, i', and, i', and the butterfly nuts, K, screwed down so as to hold the end or desired portion of the pipe securely in position. The double arm, E, E, would be in the position shown in Fig. 1. By pulling the double arm, E, E, in the direction indicated by arrow to the position shown in Fig. 2, the desired bend may be formed. If necessary such double arm E, E, may be even lowered still farther to bend still more.

When it is desired to transport my machine I have simply to throw out the swing bolts, J, and remove the blocks, I, I', when the standards, A, may be thrown up into the position shown in dotted lines in Fig. 1, and the bed plate A, secured by the hook or catch, c'. In such position the machine may be carried from place to place very conveniently.

It will be noticed in Fig. 1, that the segmental recess, d', permits of the holding blocks, I, I', being brought close up to the tangential portion of the groove so that there will be no danger of the pipe kinking or puckering between the holding blocks and the portion of the grooved wheel where the bend is started.

I find in practice that such a machine as I describe is very convenient in form and simple to operate, so much so, that pipes which at present take considerable time to bend may be bent within a minute, and this too, when the pipe is quite cold.

My machine, it will readily be understood, may be applied to all pipes of different metals and is particularly adaptable for bending lead, so that the bend will be uniform and the internal diameter of the pipe practically as perfect as when the pipe is straight. It will also be understood that in order to bend pipes of different diameters it is simply necessary to withdraw the stationary wheel, D, and substitute another one of different width or size of groove according to the pipe it is desired to bend. The movable wheel, F, may also be changed by withdrawing the bolt, f.

What I claim as my invention is—

1. In a pipe bender the combination with the standards and stationary grooved wheel supported therein and means for holding one end of the pipe, of a swing arm, E, E, pivoted on the central bolt supporting the stationary wheel and provided with a grooved wheel, F, journaled on the bolt f, extending through the slots, e', e', into the side bars, e, e, the cross bar, f', the ends of which also extend

through the slots, e', e', into the side bars, e, e and the threaded spindle, G, screwed through the cross bar, g, and secured in the cross bar, f', at the bottom as and for the purpose specified.

2. In a pipe bender the combination with the standards and stationary grooved wheel supported therein and means for holding one end of the pipe, of a swing arm, E, E, pivoted on the central bolt supporting the stationary wheel and provided with a grooved wheel, F, journaled on the bolt f, extending through the slots, e', e', into the side bars, e, e, the cross bar, f', the ends of which also extend through the slots, e', e', into the side bars, e, e, and the screw spindle, G, screwed through the cross bar, g, and secured in the cross bar, f', at the bottom and the guard, H, and handle, E', arranged as and for the purpose specified.

3. In a pipe bender, the vertical standards, the grooved wheel, the radial slot therein, the bolt carried by said standard extending centrally of said wheel supporting the same, a second bolt passing through said slot near the periphery of said wheel held in said standard, to prevent the rotation of said wheel and the lever arms carrying a grooved wheel and means for holding the pipe to be bent rigidly, against longitudinal movement, substantially as described.

4. In a pipe bender the combination with the standards, A, A, and stationary grooved wheel supported therein by the bolts, B, and, C, which extend through the radial recess, d, the segmental recess, d', made in the wheel, D, and means for holding one end of the pipe, of the swing arm, E, E, provided with an adjustable held grooved wheel, F, as and for the purpose specified.

5. The combination with the standards and stationary grooved wheel supported therein and the swing arm having the adjustable grooved wheel, F, capable of rotation of the holding blocks, I, I', the block, I', of which has recesses, i', to fit upon the upwardly extending projections, a, a, of the standards, A, A, and provided with the central arc-shaped recesses, i, i', for the reception of the pipe and means for holding such blocks together, so as to clamp the pipe during bending as and for the purpose specified.

6. The combination with the standards and stationary grooved wheel supported therein and the swing arm having the adjustable grooved wheel, F, capable of rotation of the holding blocks, I, I', having the notches, i', and, i', respectively and the lower block, I', having the recesses, i', and the swing bolts, J, designed to be brought to fit into the notches, i', and, i', and clamp the blocks together by means of the butterfly bolts, K, as and for the purpose specified.

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Witnesses:

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