P. Kendrick.

Making Chains.

No. 80,354. Patented Jul. 28, 1868.

Fig 1.

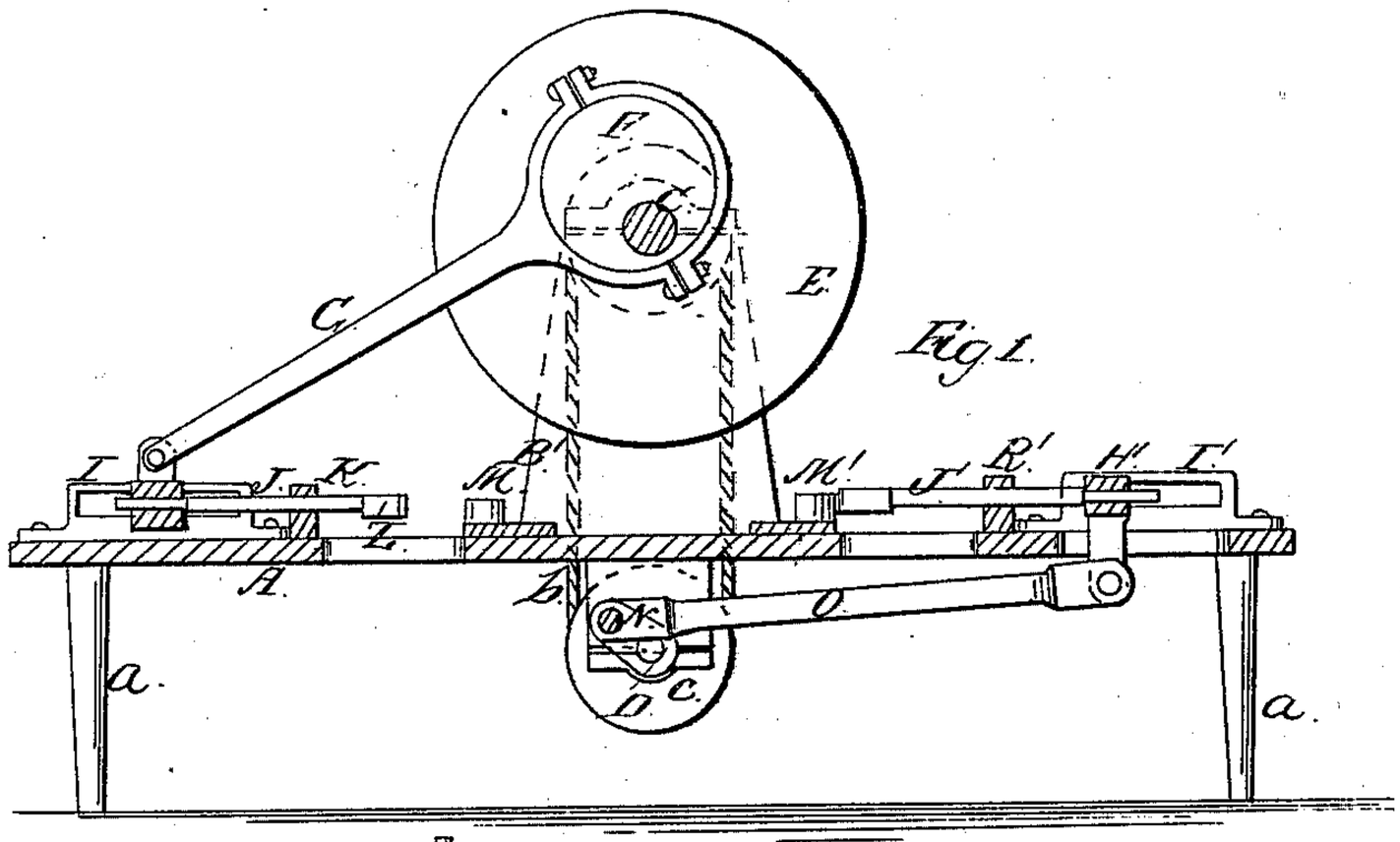


Fig 2.

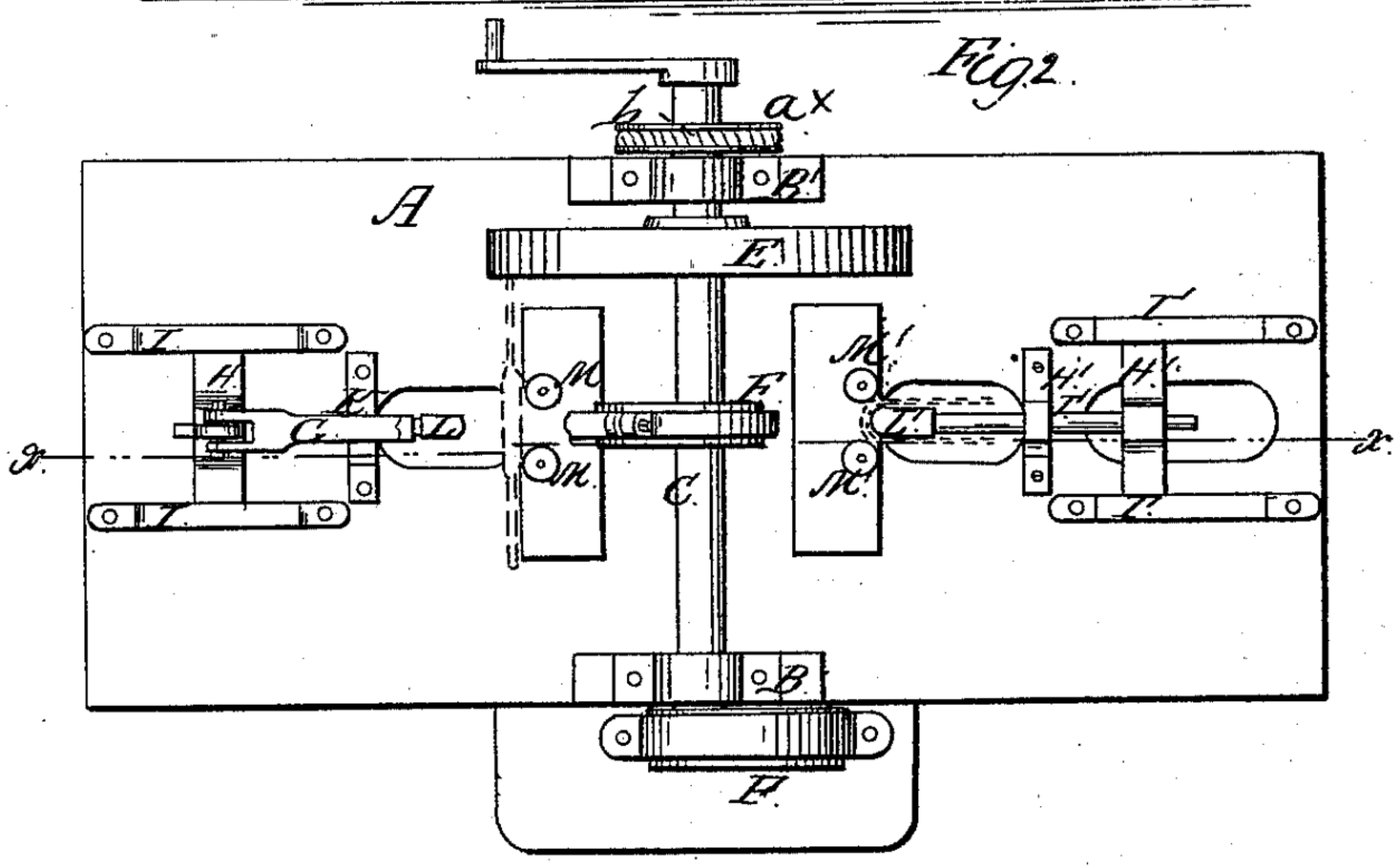
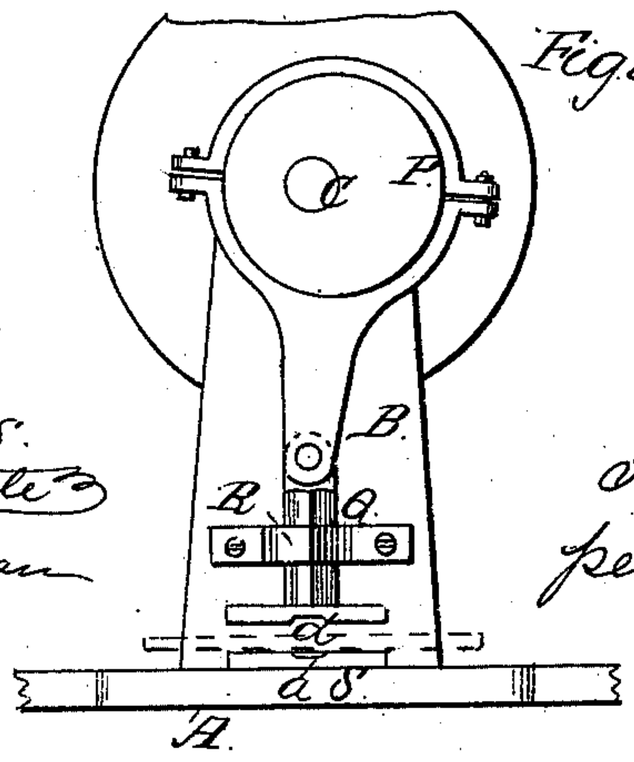


Fig 3



Witnesses.
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PETER KENDRICK, OF TRENTON, NEW JERSEY.

Letters Patent No. 80,354, *dated July* 28, 1868.

IMPROVEMENT IN MACHINE FOR FLATTENING AND BENDING CHAIN-LINKS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, PETER KENDRICK, of Trenton, in the county of Mercer, and State of New Jersey, have invented a new and useful Improvement in Machines for Flattening and Bending Rods for Chain-Links; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side sectional view of my invention, taken in the line *x x*, fig. 2.

Figure 2 is a plan or top view of the same.

Figure 3 is a part view of a portion of the same.

Similar letters of reference indicate like parts.

This invention relates to a new and improved machine for flattening and bending rods for the manufacture of links for chains, such as are used more especially for mining purposes.

The invention consists in a peculiar construction and arrangement of parts, whereby the two different-sized links required for the manufacture of each chain may have the rods of which they are formed flattened and bent on one and the same machine.

A represents a horizontal bed or platform, which is supported at a suitable height by legs *a*, or any proper framing, and B B′ are two upright side pieces, secured to the bed or platform, and having a shaft, C, between their upper parts.

The shaft C has a pulley, $a^{\times}$, upon it, around which a belt, *b*, passes, said belt also passing around a pulley, *c*, on a shaft, D, underneath the bed or platform A, C being the driving-shaft, and communicating, by means of the belt *b*, motion to the shaft D.

The shaft C has a fly-wheel, E, keyed upon it, and also an eccentric, F, to which the upper end of a rod, G, is applied, the lower end of said rod being pivoted to a cross-head or slide, H, the ends of which are fitted, in suitable guides, I I, on the bed or platform A, near one end of the same.

To this cross-head or slide H there is attached a plunger-rod, J, which is fitted and works in a guide, K, on the bed or platform, the inner end of the rod J being provided with a rectangular head, L, rounded at its end, and which works between two rollers M M, on the bed or platform.

On the platform, near the opposite end thereof, there is a similar device, H′ being the cross-head or slide, J′ the plunger-rod, K′ the guide for the same; M′ M′, the rollers, and I I the guides for the cross-head or slide J′, the latter being operated from a crank, N, on the shaft D, by a connecting-rod, O.

On one end of the shaft C there is an eccentric P, which communicates a rising and falling motion to a die, Q, which is fitted in a suitable guide, R, attached to the upright, B.

This die is directly over a bed or bolster, S, and the face of the die and the upper surface of the bolster are grooved or hollowed out, as shown at *d*, in fig. 3.

The operation of the machine is as follows: The rods, shown in red, are cut of a suitable length, properly heated and placed, one at time, on the bed or bolster S, the central rod being in line with the grooves *d d*, in the die and bolster.

Each time the die Q descends, it flattens the rod at each side of its centre, the centre not being touched in consequence of the grooves *d d*, and therefore left of a cylindrical form, the original shape of the rod.

The rod, after being thus flattened, is, under the same heat, placed in front of the plunger-rod J or J′, and, as the latter is moved inward, the rod is bent so that the centre cylindrical part will be of semicircular form, and the thus flattened sides parallel with each other, (see fig. 2.)

The links, after being thus flattened and bent, are ready for interlocking and welding, to complete or form the chain.

One of the plunger-rods J has a smaller head than the other, and said rod J also has a shorter stroke, so that it may bend rods for the smaller links of the chain; the other plunger-rod J′ bending rods for the larger links, two different-sized links being used in each chain, as previously alluded to.

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

1. The arrangement of the plungers J J′, rolls M M′, guides K K′, I I′, cross-heads H H′, connecting-rods O G, shafts C D, eccentrics P F, crank N, dies Q S, and guide R, with relation to the bed A, substantially as herein shown and described, for the purposes specified.

2. The combination of the grooved dies Q S, arranged as described, with the bending-mechanism, all substantially as set forth.

PETER KENDRICK.

Witnesses:

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