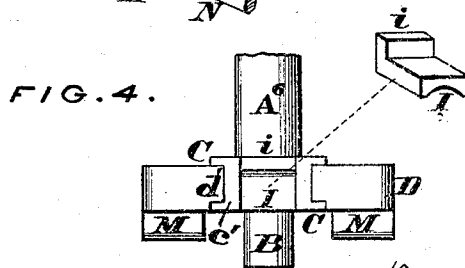
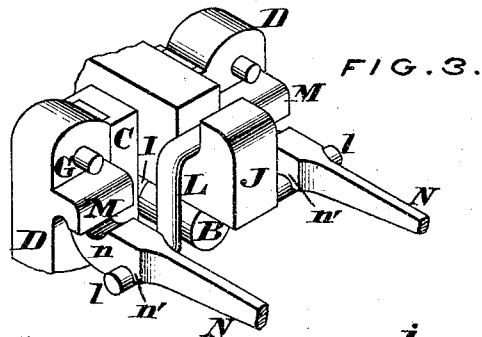
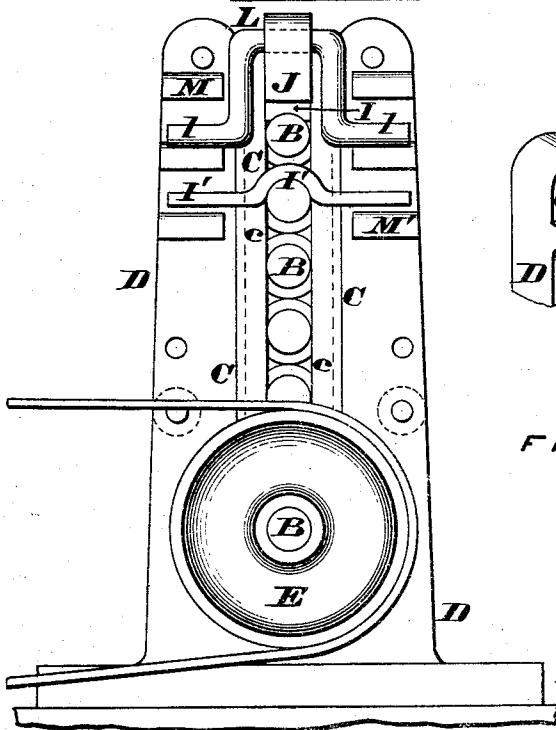
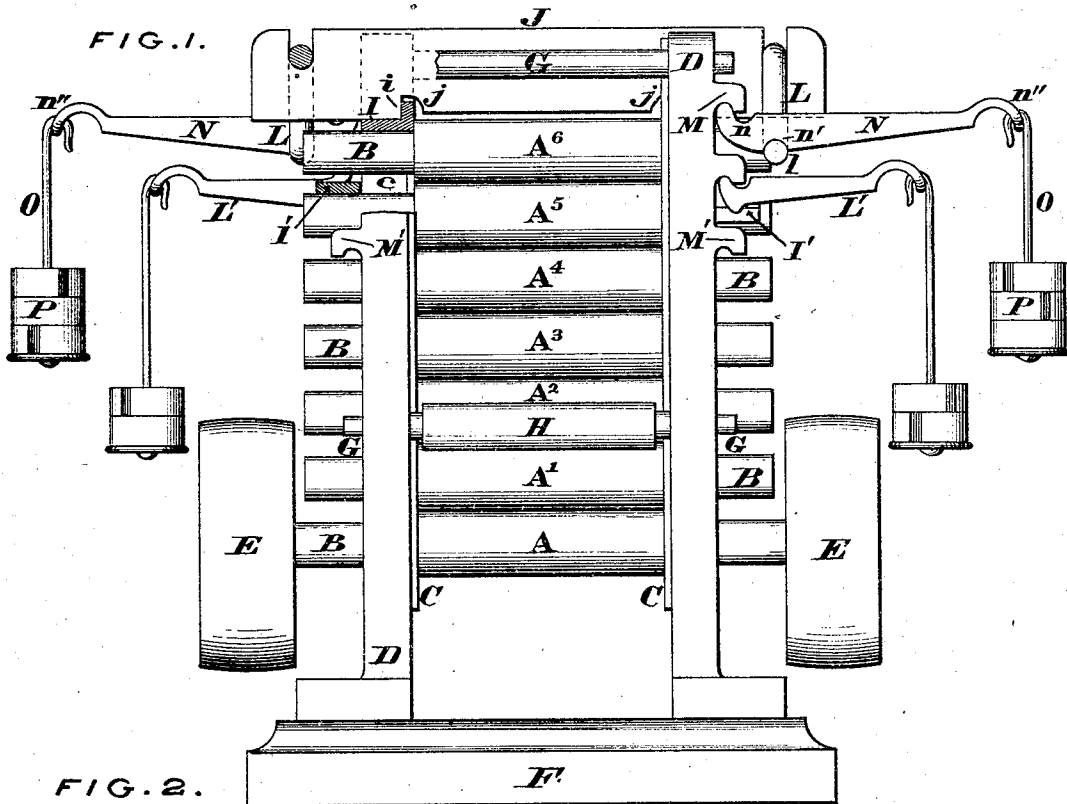


J. EVANS.

Machines for Cold Rolling Sheet-Metals.

No. 135,102.

Patented Jan. 21, 1873.



Attest.

Jas. H. Layman
 John H. H. H.

James Evans
 By Knight Bros.
 Att'ys.

UNITED STATES PATENT OFFICE.

JAMES EVANS, OF PORTSMOUTH, OHIO.

IMPROVEMENT IN MACHINES FOR COLD-ROLLING SHEET METAL.

Specification forming part of Letters Patent No. **135,102**, dated January 21, 1873.

To all whom it may concern:

Be it known that I, JAMES EVANS, of Portsmouth, Scioto county, Ohio, have invented a new and useful Machine for the Cold-Rolling of Sheet Metal, of which the following is a specification:

Nature and Objects of the Invention.

This is a machine for smoothing and leveling sheet-iron, such as stove-pipe iron and other sheet metal, and in its most complete form possesses several important advantages, such as, first, the completely uniform smoothing and leveling of metallic sheets with an equal pressure, wholly irrespective of thickness; second, the cheap and easy restoration of worn rolls by simply shifting them, and without removal from the machine or interruption of its use.

Description with Reference to the Drawing.

Figure 1 is a side elevation of a cold-rolling machine embodying my improvement, the upper portion of one of the standards being broken away. Fig. 2 is an end elevation of the machine with the levers and weights removed. Fig. 3 is a perspective view of one end of my rider with its appendages, the levers being broken off; and Fig. 4 is a plan of the top of one of the standards, showing the cheeks and one of the saddles.

My machine comprises essentially a series of rolls, $A A^1 A^2 A^3 A^4 A^5 A^6$, of cylindrical form and equal diameters. These rolls rest horizontally one upon another, so as to constitute a vertical range or tier, as represented. The journals B of these rolls occupy vertical slots c in cheeks C , of brass or other suitable metal, and these cheeks occupy vertical slots in the standards D of my housing, and are secured in place by means of tongues d' and grooves c' . The lowest roller journals in the half-round bottoms of the slots c , and upon the periphery of this roll rests the next in succession, and so on to the top one, the journals of each roll being held against both lateral and longitudinal displacement by the sides of the slots c , beyond which they slightly project, for a purpose that will presently appear. The journals of one roll, preferably the lowest one, are prolonged for the attachment of band-pulleys E , by which said roll is driven, and from this motion is communicated to all the

others by the simple friction of their peripheries as they rotate in contact. The housings are firmly bolted to a carefully-leveled and substantial base, F , and are held at their proper distance apart by means of stays G , one or more of which may have sleeves H to serve as rests in feeding sheets into the machine. Upon each journal of the top roll rests a saddle, I , whose lip i occupies a nick, j , on the under side of rider J , which rests upon said saddles, extending from one to the other and beyond them to receive yokes L . Hooked lugs M , which project outwardly from the housings, serve as fulcrums for the engagement of the hooked extremities n of levers N , which are nicked, n' , on their under sides, so as to rest securely upon the wrists l of yokes L . Eyes n'' in the free extremities of the levers N receive the hooked carriers O , which are loaded with weights P to any extent required. Additional hooked lugs, M' , saddles I' , and levers L' may be employed, if desired, so as to divide with the upper roll and weighted attachments the duty of imparting the requisite pressure.

Operation.

The levers n having been properly weighted, the machine is set in motion, and a sheet or bundle of sheets, having been fed in on one side, is returned through the next pair of rolls above or below, as may be preferred, and these passes are repeated as often as necessary. The powerful leverage of the loaded parts acts to closely nip and level the sheets without a positive or gage distance, so that, while the desired uniform pressure is obtained, there is no liability incurred of cutting the sheets or of breaking the machine as when the common unyielding adjusting-screws are employed.

In case one pair of rollers should become worn in the middle, (as must sooner or later occur with any rolls,) it is but the work of a few minutes to shift the worn rollers to a higher or lower position in the tier, so as to bring unworn ones into their places. The worn rolls will then, as the machine is used, proceed to wear themselves true again, and may be restored to their original places by the time the others in turn become worn.

While preferring seven to any greater or less number of rolls, I reserve the right to use

any convenient number more than two, preferring, however, an odd number, as, for example, five, seven, nine.

My extremely simple and easily-managed mechanism of adjustment enables the employment of a much cheaper class of labor than that required to work the common screw-machine.

Claims.

I claim as new and of my invention—

1. The arrangement, substantially as described, of a tier of five or more interchangeable rolls resting upon one another, and all propelled from one of them by simple friction

of their peripheries, as and for the purpose set forth.

2. In the described combination with the vertical range of horizontal rolls resting one upon another, the cheeks C, saddles I, rider J, yokes L, hooked lugs M, and weighted levers N, or their equivalents, for the purpose set forth.

3. The supplementary loading devices I' L' M', as and for the purpose represented.

In testimony of which invention I hereunto set my hand.

Witnesses: JAMES EVANS.

GEO. H. KNIGHT,
JAMES H. LAYMAN.