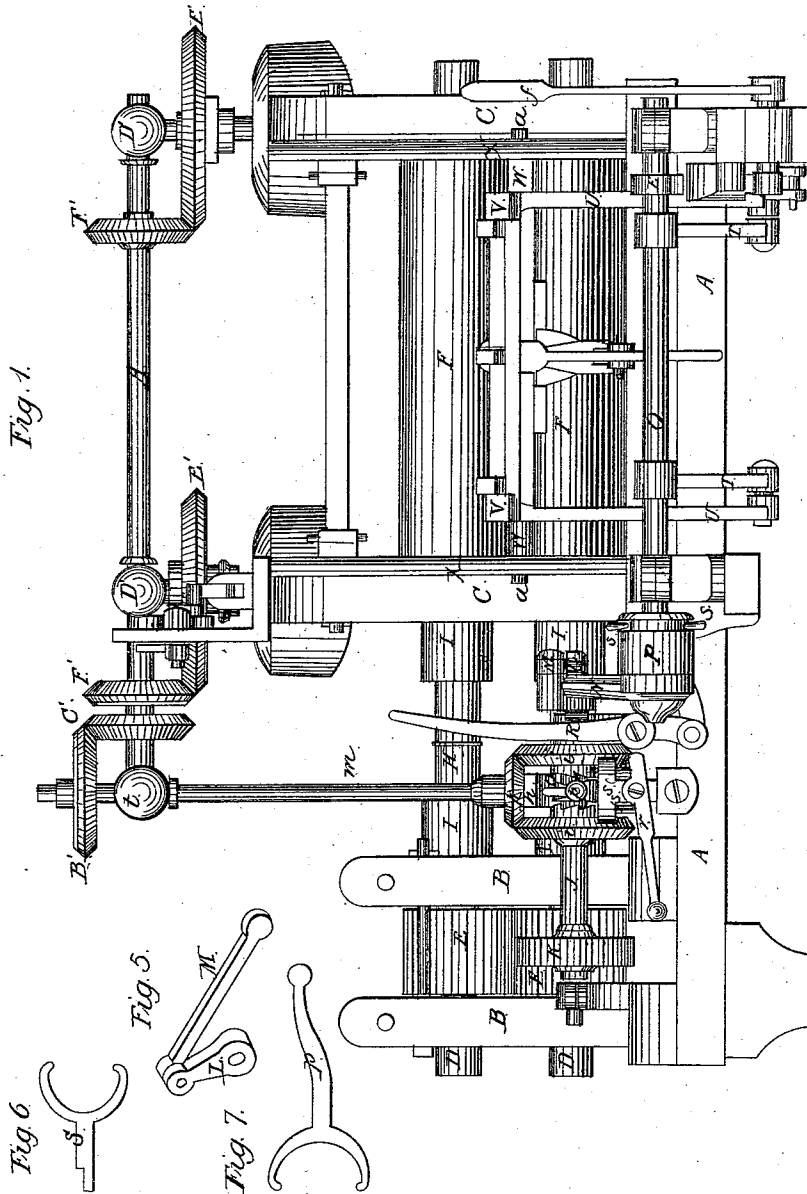


Nevegold & Brose.

Rolling Metal.

N^o 82,433.

Patented Sept. 22, 1868.



Witnesses:

J. Alfred Egan
J. T. White

Inventors:

F. Nevegold & O. Brose
Per
J. H. Alexander

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Fig. 2.

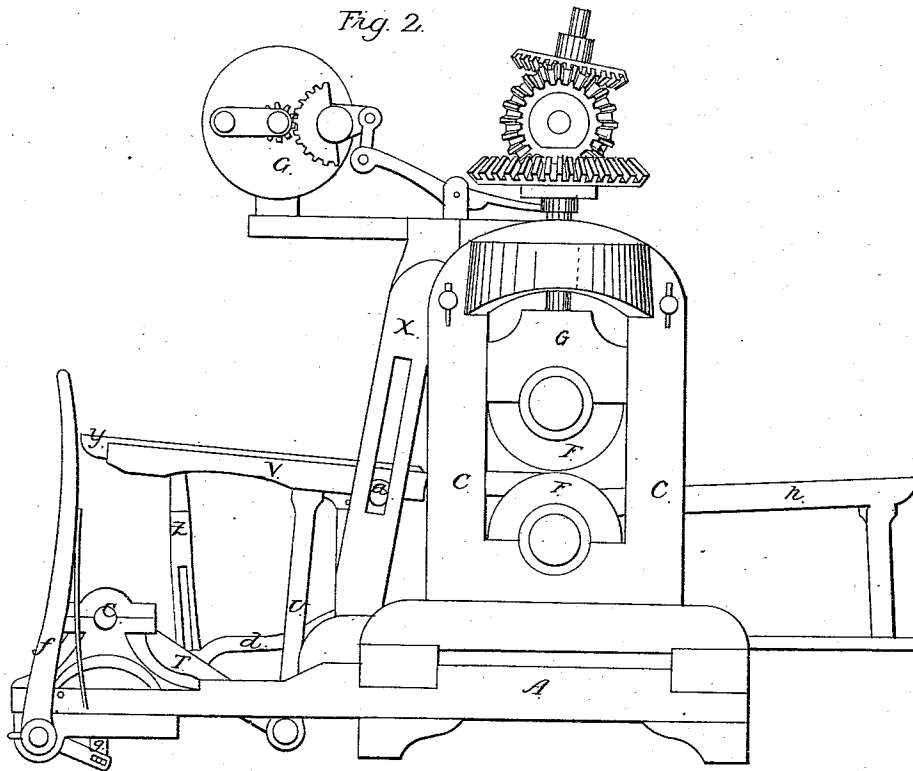


Fig. 3.

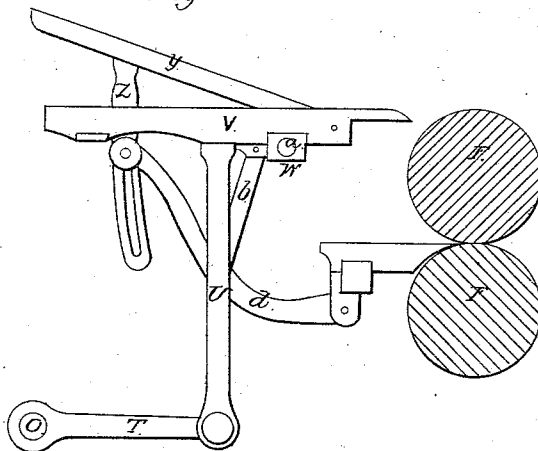
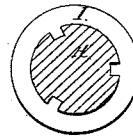


Fig. 4.



Witnesses:

J. Alfred Davis
J. V. White

Inventors:

J. Neuergold & A. Brose
By
S. H. Alexander
Att'y

United States Patent Office.

FOSTER NEVERGOLD AND DAVID BROSE, OF PITTSBURG, PENNSYLVANIA.

Letters Patent No. 82,433, dated September 22, 1868.

IMPROVEMENT IN ROLLING-MILLS.

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

TO ALL WHOM IT MAY CONCERN:

Be it known that we, FOSTER NEVERGOLD and DAVID BROSE, of Pittsburg, in the county of Allegheny, and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Raising Iron, &c.; and we do hereby declare the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification, and in which—

Figure 1 is a front elevation, and

Figure 2 a side view of our machine.

Figure 3, a side view of the movable table when raised up.

Figure 4, a cross-section of the shaft connecting the rollers with the driving-gear.

The nature of our invention consists in the construction of a machine for raising iron and steel plates up and putting them over the rollers, which will be hereinafter more fully described.

In order to enable others skilled in the art to which our invention appertains to make and use the same, we will now proceed to describe its construction and operation.

A represents the bottom or bed of the machine, on which bed are placed standards, forming two upright frames, B B and C C, of suitable height and suitable distance from each other.

In the frame B B are two shafts, D D, which are each provided with a cogged wheel or roller, E, working in each other. To one or both of the shafts D D, that is, to the outer end thereof, the power with which the machine is to be operated, will be attached in any manner most convenient, whether the same is hand or horse-power, or steam or any other motive-power desired.

In the frame C C are two rollers, F F, between which the plates are pressed. The lower one of these rollers has its shaft-bearings in the sides of the frame, and the upper roller rests on the lower, the journals of the former being held in proper position by adjustable sliding blocks G G, one on each side, as shown in fig. 2.

The inner ends of the shafts D D are connected with the shafts or journals to the rollers F F, by means of additional shafts, H H, and movable collars I I. The shafts H H, as well as the ends of the shafts D D, and the journals to the rollers, are all grooved, and the insides of the collars I I are provided with lugs or flanges fitting in said grooves, so that when, for instance, the lower of the shafts D is set in motion, the motion is communicated to the lower roller, and by means of the cogged rollers E E, also to the upper, both the rollers F F working so as to carry the plate between them and out on the other side.

Ordinarily, two men provided with long hooks throw the plates over on the roller side, but this machine is intended to save the labor of these men.

For this purpose we place a shaft, J, provided with a cogged wheel, K, in suitable bearings on the bed A, in such a manner that the wheel K will work or gear into the cogs on the lower roller E; and at the inner end of said shaft J is a crank, L, which, by means of a pitman, M, connects with another crank, N, on the shaft O, the latter being placed in suitable bearings in the bed in front of and parallel with the rollers F F. The crank N is, however, not secured to the shaft O, but fits around it and moves independent of the shaft. So as to make the crank turn said shaft, when desired, it is provided with a tooth on its inside, which fits into a notch on the movable collar P, said collar being on its inner side provided with a lug, which works in a groove on the shaft O.

It will thus be seen that when this movable collar is thrown into gear with the crank N, the shaft O is turned partly around, but when the crank moves back, the shaft does not follow, as the inclined side of the tooth of the crank throws the movable collar away from it. To throw the collar back in gear again, a lever, R, is placed, which, by means of a rod, connects with a crab-lever, S, the latter surrounding the collar, and working in a groove on the same.

To the shaft O are secured two arms, T T, which extend towards the frame C C, and at their rear ends are pivoted to the legs U U of the table V. This table is horizontal, and is provided with journals *a a* on the ends

of a cross-bar, W, as seen in fig. 1. These journals slide up and down in slotted side-pieces X X, which are secured to the sides of the frame C C.

The table V mentioned consists merely of a frame, in the rear end of which, that is, the end nearest to the rollers F F, a leaf, Y, is hinged. This leaf, when in proper position, lies between the side-pieces of the table, resting on a cross-bar at the front end.

Near the front end of the leaf Y, and from the centre thereof, an arm, Z, descends, which arm is pivoted to said leaf, and slotted at its lower end, as seen in fig. 3. In the lower side of the table V is pivoted an arm, b, the lower end of which forms a fork. A bent or curved lever, d, is now pivoted at its rear end in a suitable arrangement in the frame C C, which extends forward, passing through the forked end of the arm b, and its own front end being forked, the arm Z is passed through the same. A pin put through this forked end, and the slot on the arm Z, allows it to slide up and down in said slot.

It will readily be seen that when the shaft O is turned as far as the crank N will allow, the table V rises up, and as soon as it has gone high enough to let the pin in the forked end of the bent lever d strike the upper end of the slot in the arm Z, it raises the forward end of the leaf Y up a suitable height to throw the plates over.

When the crank N now moves back, the shaft O does not follow, as already mentioned, but the weight of the table itself would force it down. To prevent it from coming down until desired, the shaft O is provided with a small wheel, e, on one side of which is a tooth or notch, and when the table is raised up, by turning the lever f on the side of the bed A, a bolt, g, catches in the said notch on the wheel e, preventing the shaft O from turning.

When it is desired to have the table descend, the bolt is withdrawn, by moving the lever f back, and the weight of the table brings it down, ready to be again raised, by throwing the collar P in gear with the crank N, as already mentioned.

A stationary table, h, is placed on the other side of the rollers F F. On the shaft J are placed two pinions, i i, which work in a pinion, k, on the lower end of the upright shaft m. This shaft rests on a support, n, which extends from the bed A, in rear of and above the shaft J.

The pinions i i are not secured to said shaft, but placed loose on the same, and when it is desired to use the shaft m for the purpose which will be hereinafter set forth, a movable collar, o, placed between said pinions, is thrown in gear with either the one or the other, as may be required. For this purpose the inner sides of the hubs on said pinions are provided with teeth, which fit into notches on the sides of the collar, and a crab-lever, p, moves said collar either way, the inside of the collar being provided with a lug, fitting in a groove on the shaft J.

It will be seen that by throwing this collar in gear with the right or left pinion, the shaft m is turned either to the right or left, as may be desired.

To prevent the collar o from being by accident thrown in gear with either of the said pinions, we have provided a stay-lever, r, to which two pins, s s, are secured, which extend up one on each side of the lever p, when the latter is placed so that the collar is out of gear. This effectually prevents said collar from being moved to either side, until the stay-lever r is so turned that either one of the pins s s allows the lever p to be moved to one side.

The upper end of the upright shaft m runs through a hollow head, t, in the side of which the horizontal shaft A' has its bearing. This shaft runs a suitable distance above the frame C C, and is turned by means of a pinion, B', on the upper end of the shaft m, and a similar pinion, C', secured to the shaft A' itself, which rests in hollow-headed bolts or pins, D' D'. These pins are inserted into the hubs of two cog-wheels, E' E', to the lower side of which screws are secured, which run through the top of the frame C, regulating the blocks G, thereby preventing the upper roller F from moving upwards farther than a given distance.

Pinions F' F', on the shaft A', gear into the cog-wheels E' E', to turn the same.

A screw-regulator, G', is attached to the under side of one of the cog-wheels E', as seen in fig. 2, which regulates the draught on the iron.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The shaft J, crank L, and pitman M, in combination with the crank N, movable collar P, and shaft O, all constructed and arranged as described, substantially as and for the purpose herein set forth.

2. The combination of the table V, arm b, side-pieces X X, arms T T, shaft O, legs U U, hinged leaf Y, slotted arm Z, and the lever d, all constructed and arranged as described, and operating substantially as herein set forth.

3. The stay-lever r, swivelled pins s s, and perforated lever-rest, in combination with crab-lever p, all constructed and arranged in the manner and for the purpose substantially as herein set forth.

4. The upright shaft m and pinion B', in combination with pinion C', shaft A', pinions F' F', cog-wheels E' E', and regulator G', all constructed, arranged, and operating substantially as herein set forth.

In testimony that we claim the foregoing as our own, we affix our signatures in presence of two witnesses.

FOSTER NEVERGOLD,
DAVID BROSE.

Witnesses:

J. DONALDSON,

J. V. DONALDSON.