

(No Model.)

R. H. BROWN.
ROLLING MACHINE.

No. 470,908.

Patented Mar. 15, 1892.

Fig. 1

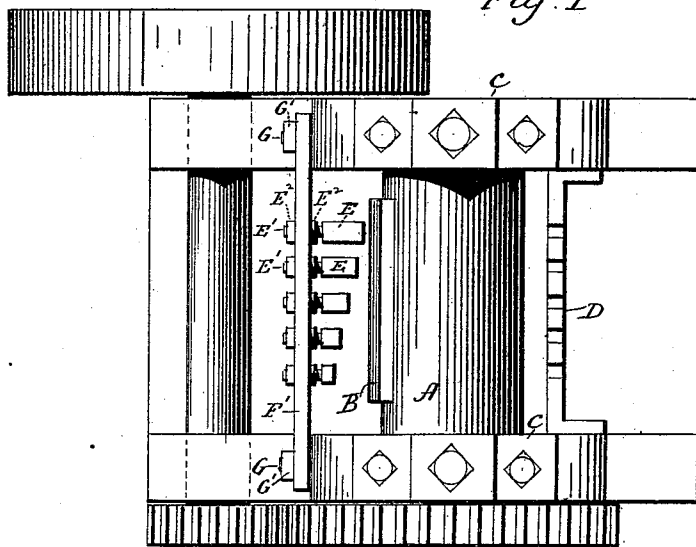


Fig. 2

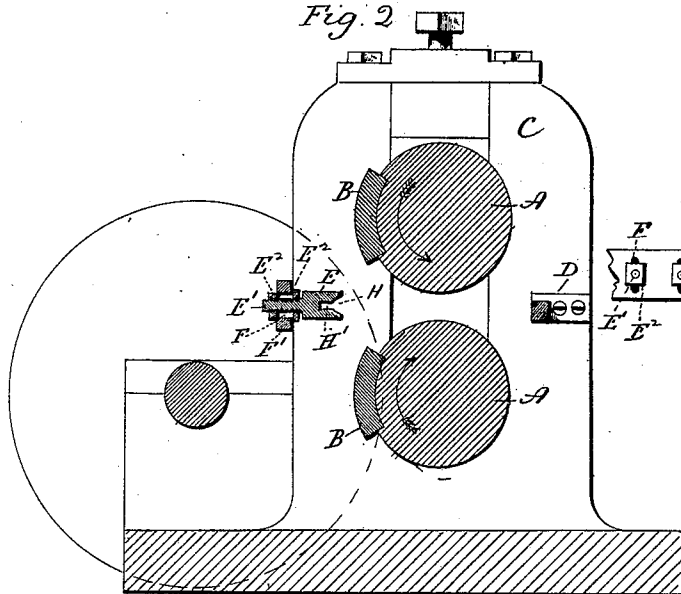
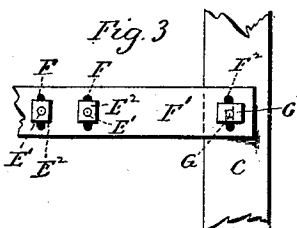


Fig. 3



Witnesses.
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UNITED STATES PATENT OFFICE.

REUBEN H. BROWN, OF NEW HAVEN, CONNECTICUT.

ROLLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 470,908, dated March 15, 1892.

Application filed April 2, 1891. Serial No. 387,333. (No model.)

To all whom it may concern:

Be it known that I, REUBEN H. BROWN, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Rolling-Machines for Developing Blanks for Forging; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a plan view of a machine constructed in accordance with my invention; Fig. 2, a view thereof in vertical transverse section; Fig. 3, a broken view in rear elevation showing the adaptation of the gage-carrier to be vertically adjusted.

Heretofore, in developing metal blanks preparatory to finally shaping them in drop-presses by passing them through rolls provided with developing-dies, the extent to which the blanks were introduced between the rolls was determined by sliding collars mounted upon the blanks and shifted according to a fixed gage before every pass. As thus conducted the process was slow and expensive, owing to the time and labor it required, as one operator had to be employed to reset the collars and another to handle the blanks in passing them through the rolls. The process referred to was also unsatisfactory in its results, as the blanks were not uniformly developed and some could not be used.

The object of my present invention is to secure the advantages of rolls as a means of developing blanks, and to overcome the objections above mentioned; and it consists in the combination of two rolls, each provided with a developing-die, of a series of vertically and longitudinally adjustable gages located behind the rolls in line with the opening between them.

My invention further consists in certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

The rolls A A, the developing-dies B B, respectively mounted in them, the housings C C of the rolls, and the transversely-grooved blank-rest D may be of any approved con-

struction, the developing-dies having cavities (not shown) formed in their faces and corresponding to the form which it is desired to give to the blank in its successive passes, and the said cavities gradually increasing in length from right to left in agreement with the elongation of the blank due to rolling it. As herein shown, I have provided the machine with a horizontal series of five gages, which are located behind the rolls in line with the opening between them and the blank-rest D before mentioned. Each of these gages consists of a cylindrical head E, provided at its outer end with a threaded shank E', furnished with two nuts E² E², and adapted to be passed through one of a series of five vertically-elongated slots F, formed in the horizontal gage-carrier F', each end of which is provided with a corresponding slot F², and secured to the rear edge of its adjacent housing C by means of a threaded stud G and a nut G', the stud passing through the slot and the nut being screwed against the outer face of the carrier for the purpose of holding the same in any position of vertical adjustment within the range of the slot. By loosening one or both of the nuts E² E², mounted on the shanks of any one of the gages, the same may be longitudinally or vertically adjusted, or both. When adjusted as desired, the gage is again secured in place by screwing the nuts up against the opposite faces of the carrier. Provision is thus made for the independent longitudinal and vertical adjustment of the gages to set them according to the requirements of the work to be done.

The adaptation of the gage-carrier to be vertically adjusted as described, provides for compensation for wear in the bearings of the rolls or in the dies and for changing both the rolls and dies.

Each of the gages, except that at the extreme right hand, has the inner end of its head E constructed with a conical centering recess H and a clearance-space H', extending inward from the inner end thereof. In explanation of this feature of construction, it may be said that when the blank is first entered between the rolls its outer end is of full size and engages directly with the flat face of the extreme right-hand gage, but that in its first subjection to the action of the de-

veloping-dies it has its form so changed that its extreme end can no longer be taken as the point from which to gage its position when subsequently subjected to the action of the dies, inasmuch as the said point is subject to change during the successive passes of the blank through the rolls and is not a constant point from which to gage the position of the blank between them. Such a point is found, however, for all practical purposes, in an enlargement, which in this class of work is developed just within the outer ends of the blank and the centering recesses formed in the inner ends of the heads of the gages, except as specified, are adapted to receive the extreme outer end of this enlargement, while the clearance-space extending inward from the recesses receives the extreme end of the blank, if there is an end beyond the enlargement.

In setting my improved machine for use a number of experimental passages of blanks through the rolls are made and the gages adjusted in accordance with the observed elongation of the blanks and of the gradually-increasing length of the cavities in the developing-dies. Then when the machine has been carefully set in the manner described and care is taken to have the blanks uniformly heated the regular operation of the machine may be begun, and when so operated it will be found to have a large capacity for accurate work. Of course the number of gages may be varied according to the character of the work to be done, and their specific construction for adapting them to be vertically and longitudinally adjusted may also be varied. I would therefore have it understood

that I do not limit myself to the exact construction shown and described, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

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

1. The combination, with two rolls and the housings thereof, of dies respectively mounted in the rolls and a series of gages located behind the rolls and in line with the opening between the same and adapted to be longitudinally adjusted independently, one or more of the said gages being constructed with a centering recess, substantially as described.

2. The combination, with two rolls and the housings thereof, of dies respectively mounted in the rolls and a series of gages located behind the rolls and in line with the opening between the same and adapted to be longitudinally adjusted independently and mounted in a vertically-adjustable carrier, substantially as described.

3. The combination, with two rolls and the housings thereof, of dies mounted in the said rolls and a series of gages located behind the rolls in line with the opening between the same and adapted to be independently adjusted both longitudinally and vertically, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

REUBEN H. BROWN.

Witnesses:

FRED C. EARLE,
LILLIAN D. KELSEY.