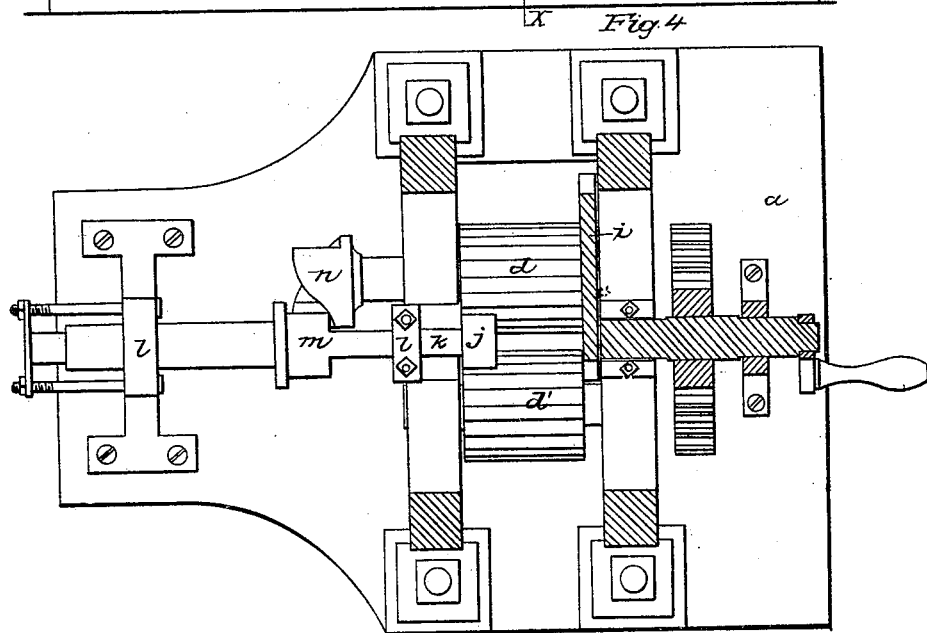
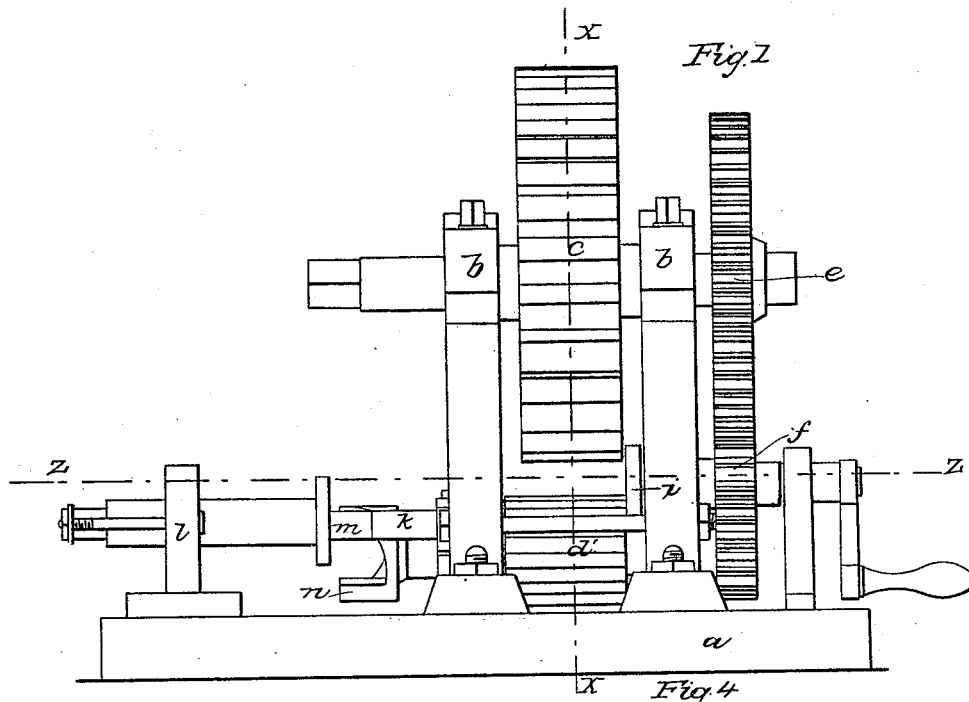


WINSLOW & SNIDER.

Rolling Puddler's Balls into Blooms.

No. 5,660.

Patented July 5, 1848.

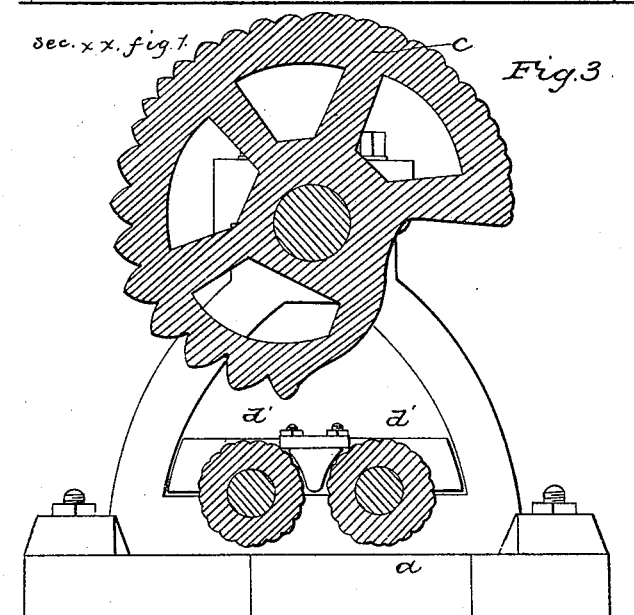
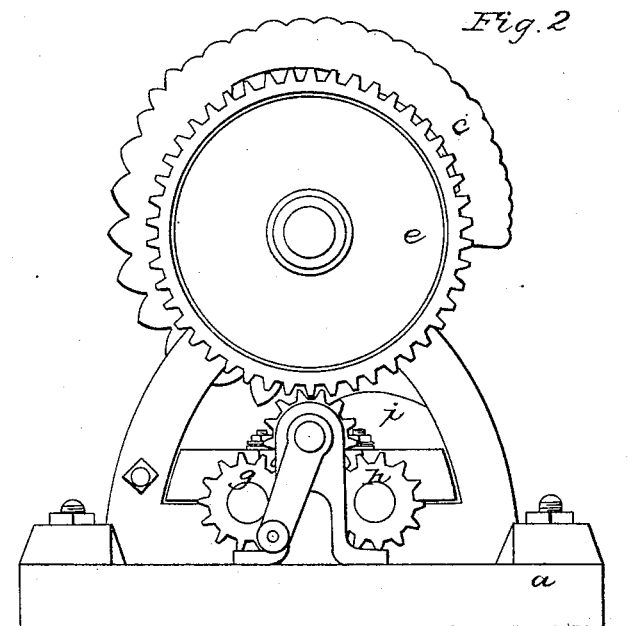


WINSLOW & SNIDER.

Rolling Puddler's Balls into Blooms.

No. 5,660.

Patented July 5, 1848.



UNITED STATES PATENT OFFICE.

JNO. F. WINSLOW AND JNO. SNIDER, OF TROY, NEW YORK; SAID SNIDER ASSIGNOR TO SAID WINSLOW.

MACHINERY FOR ROLLING PUDDLERS' BALLS.

Specification of Letters Patent No. 5,660, dated July 5, 1848.

To all whom it may concern:

Be it known that we, JOHN F. WINSLOW and JOHN SNIDER, of Troy, New York, have invented new and useful Improvements in
5 Machines for Rolling or Working Puddlers' Balls into Blooms in the Manufacture of Iron, and that the following is a full, clear, and exact description of the principle or character which distinguishes them from all
10 other things before known and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

15 Figure 1 is a front elevation of the machine; Fig. 2, a side elevation; Fig. 3, a vertical section taken at the line (XX) of Fig. 1 and looking toward the hammer; and Fig. 4, a horizontal section thereof taken at the
20 line (ZZ) of Fig. 1—that is, at a plane above the bed rollers and below the eccentric squeezer.

The same letters indicate like parts in all the figures.

25 In this machine the operation of squeezing and rolling the ball of iron is effected by an eccentric roller, combined with rollers that form a concave, as secured to John F. Winslow by Letters Patent of the United
30 States granted on the 18th of December, 1847; but in that machine side cheeks, not attached to the concave rollers, were used to prevent the iron from spreading out at the sides. This was, however, found to be defective, for the reason that the iron under
35 treatment would be forced in between the rollers and the cheeks and thus injure the machine and its operation.

The principle of the invention for which
40 we now ask letters patent consists in preventing the bloom of iron from spreading out too far at the ends, and then "upsetting the iron," as it is termed, by making one of the rollers that form the concave with a
45 flanch against which one end of the bloom shall bear as it spreads out in the squeezing operation; and also, in combining with the flanch roller for this purpose a hammer, as it may be termed, which acts on the other
50 end of the bloom by a reciprocating motion to strike that end of the bar, and thus effectually upset the iron, and give the required form to the bloom, or bar, or block of iron, during the squeezing or rolling operation.

55 In the accompanying drawings (a) rep-

resents the frame of the machine properly adapted to the intended purpose, but which may be varied at pleasure. In appropriate boxes (b, b) between the standards of this frame run the journals of an eccentric roller
60 (c), the periphery of which is cam formed and provided with cogs, as represented in the accompanying drawings, for the purpose of squeezing the ball of iron and forcing out the impurities, and gradually reducing
65 its diameter and elongating it. For a more particular description of the form, principle, and mode of operation of the squeezer, reference is made to the before recited Letters Patent. Below this squeezing roller are ar-
70 ranged two fluted rollers (d, d') whose journals are fitted to appropriate boxes in the frame. These rollers constitute the concave on which the ball of iron rests during the operation of the squeezer, cog wheels (e, f, g, h) being employed to connect the shafts of the rollers with the shaft of the squeezer
75 in such manner as that the peripheries of the two rollers (d, d') shall turn in the same direction, and that of the squeezer in the reverse direction, and thus cause the ball or mass of iron, during the operation of squeezing, to rotate about its axis, or nearly so, the requisite power for this purpose being
80 communicated to the machine from some first mover in any efficient manner. One of the bottom rollers (d) has a strong flanch (i) on one end which projects sufficiently to pass within the periphery of that part of the squeezer which acts on the iron, after it has
90 been so much elongated as to have one of its ends approach the flanch, and therefore toward the end of the operation of the squeezer that end of the bloom or mass of iron which is toward this flanch will be upset by it and
95 properly formed.

On the side of the machine opposite the flanch (i) is a hammer (j) on the end of a bar (k) which slides in collars (l). The face of this hammer is smooth, and made as
100 hammers for working iron usually are, and its edges are adapted to the peripheries of the two rollers (d, d'), and to that part of the periphery of the squeezer which acts on the bloom at the time the hammer is to strike
105 the end of the bloom. A strong helical spring surrounds the bar (k) of the hammer, one end bearing against one of the collars (l), and the other against the back of the hammer, so that its tension will always 110

force the hammer toward the flanch (*i*) of the roller (*d*). And toward the outer end, the said bar (*k*) is provided with a spur (*m*) the inner face of which is slightly rounded to bear against the face of a cam (*n*) so formed that at each revolution of the bottom rollers it gives the hammer two blows upon the bloom; and at every revolution of the rollers the spring is liberated and the hammer strikes the bloom, and thus upsets the ends, the flanch (*i*) in this part of the operation performing the office of an anvil. The face of the cam is then made in the form of an inclined plane to draw back the hammer preparatory to another operation.

Instead of forcing the hammer toward the bloom by a spring and drawing it back by a cam, this arrangement may be reversed by making the spring simply of sufficient length to draw back the hammer, and reversing the cam that it may force the hammer toward the bloom at the required time, and if desired a lever, operated in any desired manner, such as by a cam or crank, may be used to operate the hammer instead of a cam, and under this latter modification the spring may be dispensed with altogether, by connecting the hammer bar with the said lever.

Having thus described the principle of our invention, its mode of operation and construction, and the various modes in which we have contemplated the application of the principle by which it may be distinguished from all other things before known, what we claim as our invention and desire to secure by Letters Patent, is—

1. The employment of a flanch on one of the rollers of the concave, and rotating with it, to prevent the bloom or block of iron from spreading out, and to upset it, substantially as described, when this is combined with the eccentric or cam formed squeezer, as described.

2. And we also claim the employment of the hammer to strike and upset the bloom or block of iron, substantially as described, when this is combined with the flanch that performs the office of an anvil, substantially as described, whether the said flanch be used in the combination herein described or in any other effecting the same purpose.

JOHN F. WINSLOW.
JOHN SNIDER.

Witnesses:

R. THOMPSON,
NATHAN UPHAM.