

(No Model.)

2 Sheets—Sheet 1.

E. L. HOWE.
RAPPING MACHINE.

No. 497,498.

Patented May 16, 1893.

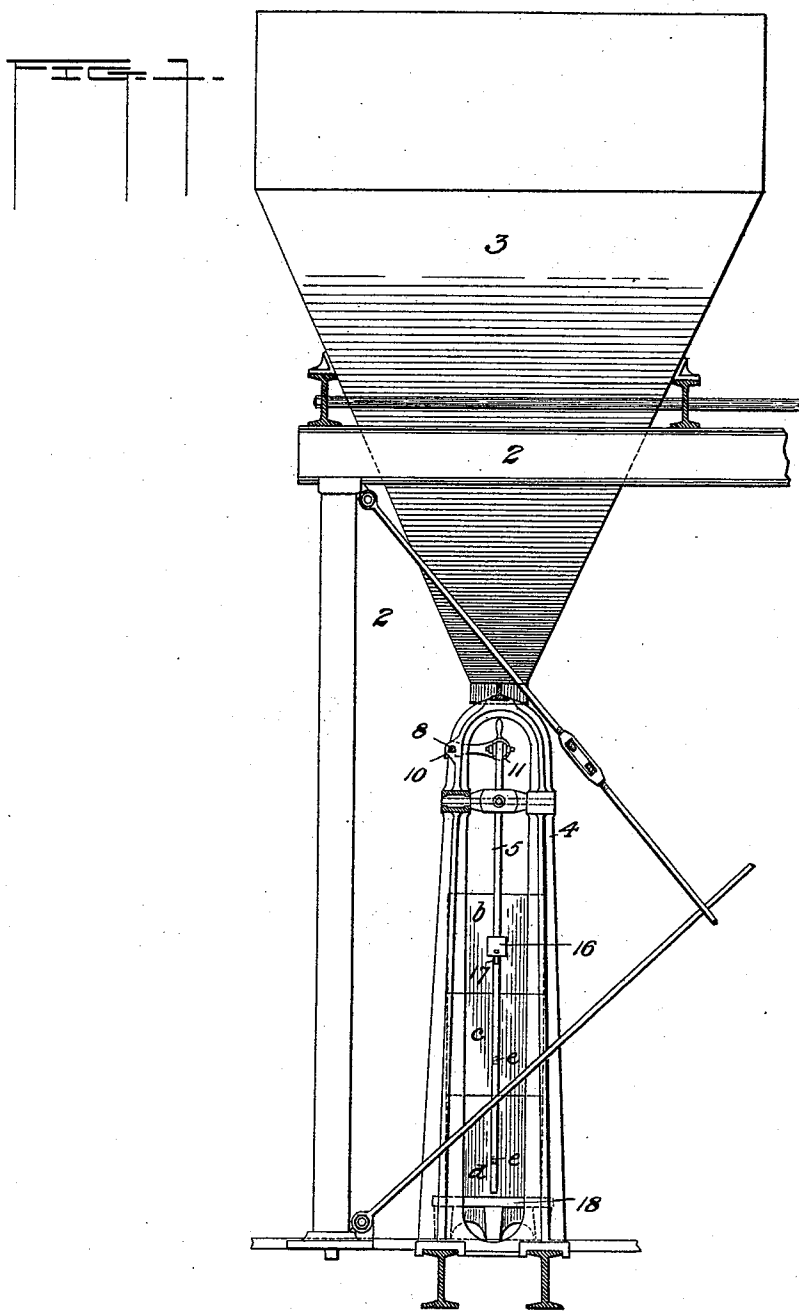
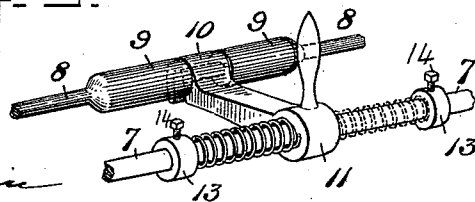


FIG. 2.



Witnesses

A. M. Corwin

W. B. Corwin

Inventor
Eugene L. Howe
by *W. B. Corwin & Sons*
his Attorneys

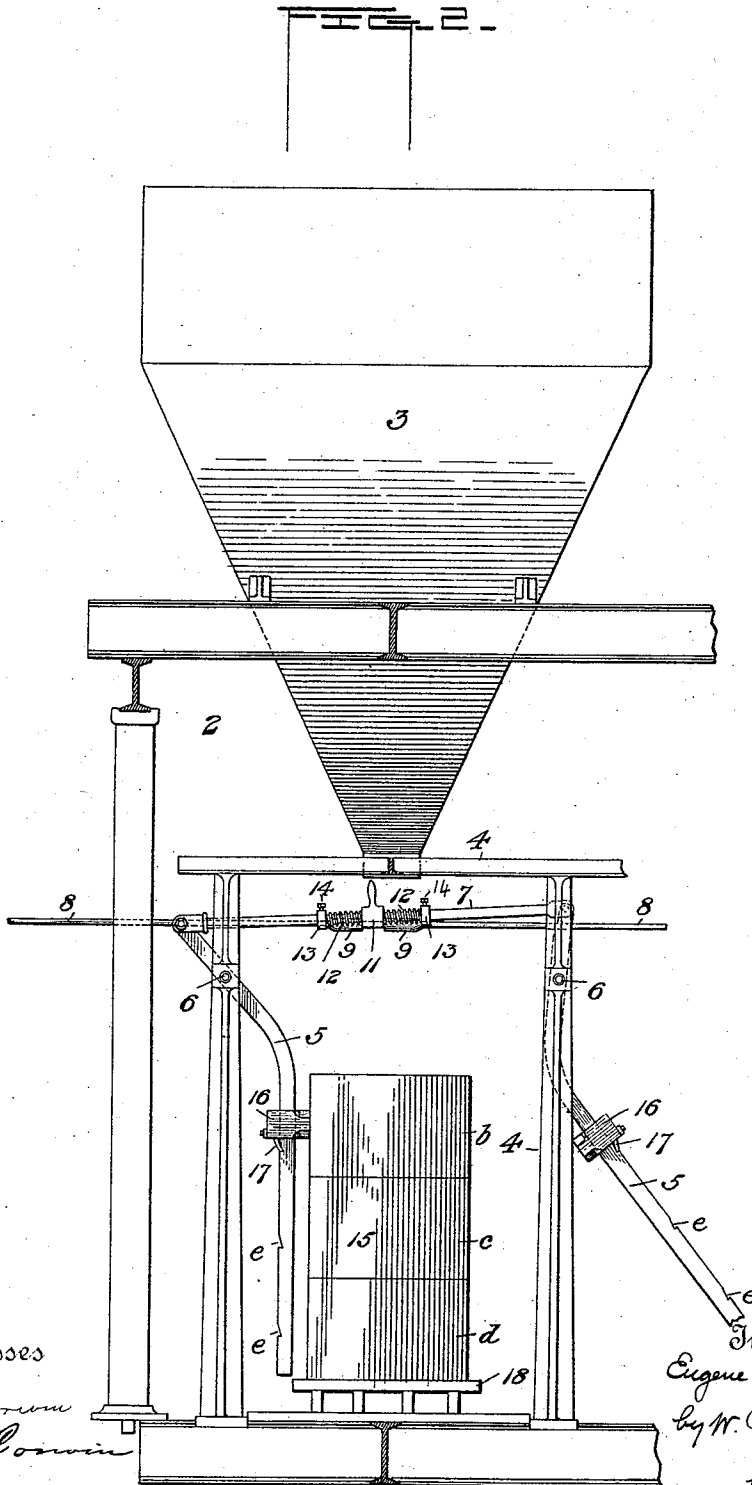
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UNITED STATES PATENT OFFICE.

EUGENE L. HOWE, OF CLEVELAND, OHIO.

RAPPING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 497,498, dated May 16, 1893.

Application filed January 22, 1892. Serial No. 418,935. (No model.)

To all whom it may concern:

Be it known that I, EUGENE L. HOWE, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful
5 Improvement in Rapping-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

10 Figure 1 is a front elevation of my improved machine. Fig. 2 is a side elevation thereof.

Like symbols of reference indicate like parts in both views.

15 The object of my invention is to provide an efficient and rapidly operating machine for doing the work of rapping castings, *i. e.* of charging them in an annealing box with the packing material by which they are to be carburized or decarburized as the case may be.

20 The machine shown in the drawings comprises a feed-hopper from which the packing material is fed to the boxes, adjustable hammers constructed and arranged to beat upon the boxes so as to jar the same and to cause
25 the settling of the packing around the castings, a frame-work, and means by which the hammers are actuated. These parts, when combined as shown, form what I believe to be the most desirable construction of my machine. It should be understood, however, that
30 the parts may be modified in construction, and, within the scope of my broader claims, some may be omitted or supplied by other devices.

35 Referring now to the drawings, 2 represents the frame of the machine.

3 is the feed-hopper into which the packing material is charged, and from which it is delivered as desired in quantities regulated
40 by means of a suitable valve or gate (not shown) situate at the lower end. Beneath the mouth of the hopper is a secondary frame 4, of suitable form, in which opposite hammer-levers 5 are pivoted at points 6, the shorter arms of the levers being connected by
45 a bar 7, so that when the levers are oscillated they shall operate reciprocally in opposite directions to beat alternately upon the box.

50 To oscillate the levers I employ a reciprocatory rod 8 set in suitable guides and actuated by a motor through any convenient

transmitting mechanism (not shown). In order to provide for the easy connection of the hammer-levers with the rod 8 and their disconnection therefrom, I provide the rod 55 with two collars 9, and the connecting bar 7 with a hook set pivotally thereon by means of a rotatory sleeve 11 from which it projects. When this hook is turned so as to engage the rod between the collars, the reciprocation 60 of the rod will cause the reciprocation of the bar and the oscillation of the hammer levers to which it is connected, and when the hook is disengaged the motion of the rod will not affect the bar. The sleeve of the hook is 65 not fixed to the connecting bar, but is set loosely so as to be capable of sliding thereon. On both sides of it are springs 12 which bear against the sleeve and against collars 13, which are adjustably fixed to the rod by set-screws 70 14. By reason of the presence of these springs, the reciprocation of the rod is transmitted to the connecting bar not rigidly but yieldingly, thus giving the hammers a freer and better action in their work of rapping the packing- 75 boxes hereinafter described. The box 15, in which the castings are packed, is set between the hammers, and preferably consists of three superposed separable parts *b*, *c*, and *d*, and in order that the hammers may be used to strike 80 each of these parts, the hammer-heads 16 are set on the levers so as to be movable longitudinally thereon, and are provided with pawls 17, by which they may be adjusted and held at notches *e* in different positions, so as to be 85 adapted to strike the several parts of the box.

The operation is as follows:—The bottom compartment *d* is placed upon its supporting plate 18 and the hammer-heads are moved 90 down and secured at the lowest notches on the levers. A layer of packing material is then fed into the compartment *d* from the hopper, a layer of castings to be annealed is placed thereon; then more packing is introduced, and the hammer-levers are caused to oscillate 95 and to strike against opposite sides of the box, thereby jarring it and causing the packing material to settle closely around the castings. In this manner alternate layers of castings and packing are introduced until the 100 compartment is full, the striking of the hammers being maintained. When this compart-

ment is full, another is superposed and filled in the same manner, the hammer-heads being raised on their levers so as to beat against the sides of the new compartment. The third
5 compartment is filled in like manner, and when the box has been charged completely, it is removed from the machine and is ready to be introduced into the heating furnace.

The advantages of the machine in respect
10 of the great saving of labor which it effects and the rapidity and efficiency with which its work is performed will be appreciated by those skilled in the art who are familiar with the laborious and expensive hand work heretofore required for this purpose. By reason
15 of the fact that the hammers may be operated continuously during the feeding of the packing, which can be introduced in a thin regular stream, the packing can be settled
20 and brought into intimate contact with every part of the surfaces of the castings much more thoroughly than has been possible heretofore. The result is that the articles are less apt to be distorted in form and are better annealed.
25

Changes in the construction and arrangement of the mechanism will suggest themselves. Thus, the hammers may be altered in form and mode of adjustment, mechanism
30 other than levers, may be used to operate them, and in other respects the construction may be varied. The power used to drive the machine may be steam power, hand-power, or derived from some other suitable motor.
35 Therefore, I do not limit myself strictly to the described construction, unless the same is expressly included in the terms of the several claims. The machine may be used for any purpose (other than for rapping castings) for
40 which it is adapted.

I claim as my invention—

1. A rapping-machine, having in combination with the machine-frame, hammers arranged to strike upon the sides of the packing-box, mechanism for actuating the same
45

and means for feeding material into the box; substantially as described.

2. A rapping-machine, having in combination, with the machine-frame, hammers adapted to strike alternately upon the packing-box, mechanism for actuating the same
50 and means for feeding material into the box; substantially as and for the purposes described.

3. A rapping-machine, having in combination, with the machine-frame—hammers arranged to strike upon the sides of the packing-box, mechanism for actuating the same, and a feed-hopper above the box support; substantially as and for the purposes described.
55

4. A rapping machine having in combination a machine-frame, hammers with adjustable heads adapted to strike upon the sides of the packing box, mechanism for actuating the hammers, and means for feeding material into
60 the box; substantially as described.

5. A rapping-machine, having in combination, pivoted hammer-levers, power-transmitting mechanism, and an interposed spring-connection between the levers and transmitting mechanism; substantially as and for the purposes described.
65

6. A rapping-machine, having in combination, pivoted hammer-levers, a connecting-bar, a reciprocatory rod, and a detachable
70 hook adapted to connect and disconnect the rod and connecting bar; substantially as and for the purposes described.

7. A rapping machine having hammers, mechanism for operating the same, and a packing-box support arranged to hold a packing
80 box in upright position between the hammers; substantially as and for the purposes described.

In testimony whereof I have hereunto set
my hand this 16th day of January, A. D. 1892.

EUGENE L. HOWE.

Witnesses:

EMIL W. JAITE,
LILLIE CHRISTIE.