

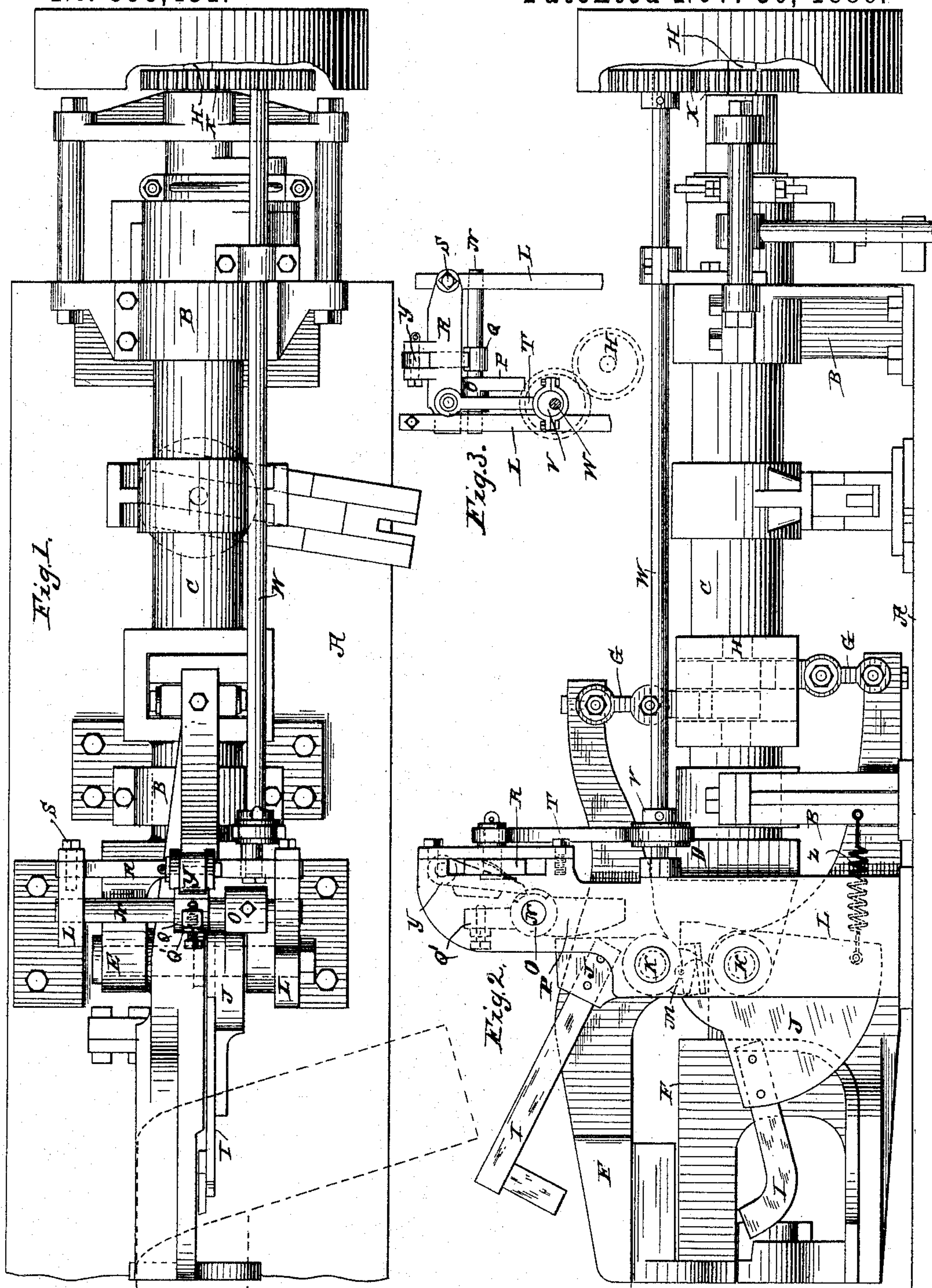
(No Model.)

J. B. ROOT.

MACHINE FOR MAKING SPIRALLY FORMED PIPES.

No. 353,431.

Patented Nov. 30, 1886.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

JOHN B. ROOT, OF PORT CHESTER, NEW YORK.

## MACHINE FOR MAKING SPIRALLY-FORMED PIPES.

SPECIFICATION forming part of Letters Patent No. 353,431, dated November 30, 1886.

Application filed August 10, 1886. Serial No. 210,504. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN B. ROOT, of Port Chester, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Machines for Making Spirally-Formed Pipes, of which the following is a specification, reference being had to the accompanying drawings.

These improvements relate especially to the form of spiral-pipe machines shown and described in United States Patents issued to me August 3, 1886, and respectively numbered 346,612 and 346,615. These machines consist, essentially, of feeding or blank advancing and shaping mechanism borne on a spirally-reciprocating shaft and adapted to clamp and shape the blank and force it forward through a circular former, such clamping mechanism and former being constructed to bring the blank into cylindrical form with its opposite edges overlapping, and also of a blow-pipe furnace arranged and constructed to apply a welding-flame to the overlapping edges of the blank at and near their point of junction. The last named of said applications includes, with the above-named devices, hammering mechanism for welding the heated edges of the blank together, which hammering mechanism is borne on the spirally-reciprocating shaft that carries the clamping mechanism, and is operated through the medium of said clamping mechanism and its actuating devices.

The present invention consists in mounting said hammering mechanism upon fixed supports independent of the clamping mechanism and its supports.

In the drawings, Figure 1 is a plan view of a machine embodying my improvements. Fig. 2 is a side elevation of the same; and Fig. 3 is a detail view, on a reduced scale, of the hammer-supports from the right-hand end of Fig. 1.

Referring to these views in detail, A is the bed of the machine, and B B are standards rising therefrom and supporting in a suitable bearing the shaft C. This shaft, by suitable mechanism attached to the right-hand end, and specially described in said first-named application, has simultaneously a longitudinal and circular motion forward and back—that is, it has a short spirally-reciprocating

motion corresponding to the spiral inclination that it is desired to give to the blank.

On the head D of this shaft is hung, on bearings E, the pinchers or clamps F, which pinchers have curved heads and clamping-faces, adapting them to shape the blank as they clamp it, and they extend back from their bearings, and are operated to close and open through the medium of links G, connected with cranks or cams on the driving shaft H, within the reciprocating shaft C, this shaft H revolving within the shaft C and having the same longitudinal motion. The blank is forced forward through a suitable former by the pinchers, the pinchers leaving the blank as they return, and the blank being held in the former in the position shown in dotted lines in Fig. 1. A suitable furnace is also provided for heating the edges of the blank, it being constructed so as to confine its flame to the edges of the blank at and near the point where they are brought together.

I I are the hammers of the welding mechanism, and it is the means of supporting and operating these hammers that constitute the present invention. These hammers are secured to blocks J, pivotally hung at K to one of the fixed standards L, that rise from the bed of the machine. These hammers are connected, so as to operate together, by the sliding gib M, or other means, and they extend forward so as to strike upon the heated edges of the blank when operated.

N is a shaft hung in the standards L above the pinchers F.

O is a sleeve, which is fast to this shaft and carries a cam, P, that bears against the blocks of the upper hammer, and is for actuating the hammers.

Q is a notched sleeve, also fast to the shaft N and carrying the tripping-arm Q'.

R is a lever, pivoted at S to one of the standards L and connected by the eccentric-rod T to the eccentric V on the shaft W, this eccentric-shaft being geared at X to the main shaft H, so as to revolve at the same rate of speed.

Y is a spring-pawl, pivoted to lever R and bearing on the periphery of the notched sleeve Q.

Z is a spring for retracting the hammers.



As the clamps are closed to seize the blank (or at such other time as the machine may be adjusted for) the revolution of the eccentric-shaft is such as to cause the pawl to descend  
5 and engage with the notched sleeve, thereby partly revolving the shaft N and forcing the hammers to close together and strike a welding-blow upon the blank. Just before the hammers come together the tripping-arm Q'  
10 strikes the pawl and disconnects it from the notched sleeve, so that the hammers are retracted by the spring Z and returned to their first position, while the clamping mechanism goes forward with the blank and returns. The  
15 advantage of this manner of supporting the hammers is that by thus giving them special rigid supports the pincher-shaft is freed from carrying and operating any devices but the clamping or pinching jaws, and hence works  
20 more freely and effectively, and need not be made so large or its various connections be so strongly constructed. Furthermore, the jarring effect of the hammers is by the present means transmitted to the bed of the machine  
25 without affecting the clamping mechanism, and wear upon the working parts is thereby largely prevented.

Other forms of stationary-hammer devices

may be used, and I do not, therefore, confine myself to the forms here shown. 30

What is claimed as new is—

1. In a pipe-machine, the combination of mechanism for spirally winding the blank and a stationary welding mechanism arranged to operate upon the edges of the blank for the  
35 purpose of joining the same together.

2. In a pipe-machine, the combination of spirally-reciprocating blank-advancing mechanism and stationary welding mechanism arranged to operate upon the edges of the blank  
40 for the purpose of joining the same together.

3. In a pipe-machine, the combination of spirally-reciprocating blank-advancing mechanism and stationary hammers arranged to operate upon the edges of the blank for the  
45 purpose of welding the same together.

4. In combination, the pinchers FF, mounted upon the spirally-reciprocating shaft C, the fixed supports L, the hammers I I, and the hammer-operating connections between the  
50 hammers and the driving-shaft H.

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Witnesses:

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