E. H. HILL.

Annealing Furnace.

No. 208,734. Patented Oct. 8, 1878.

Fig: 1.

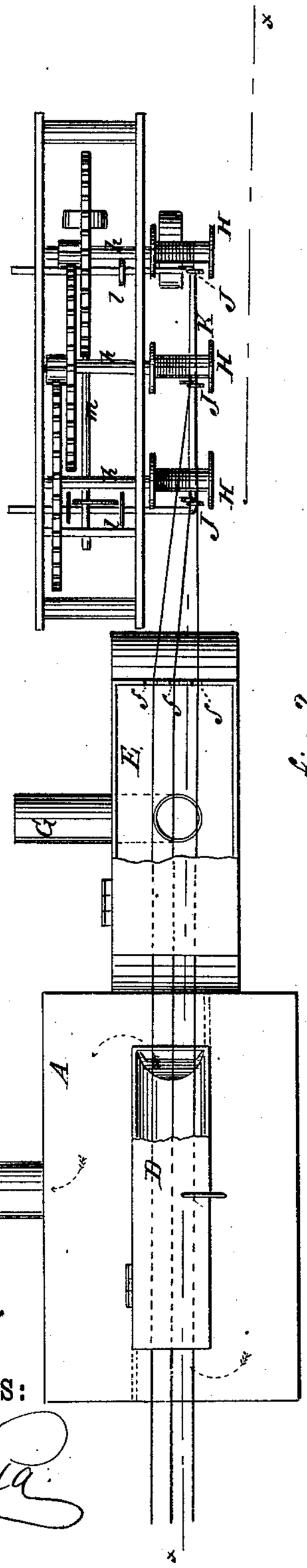
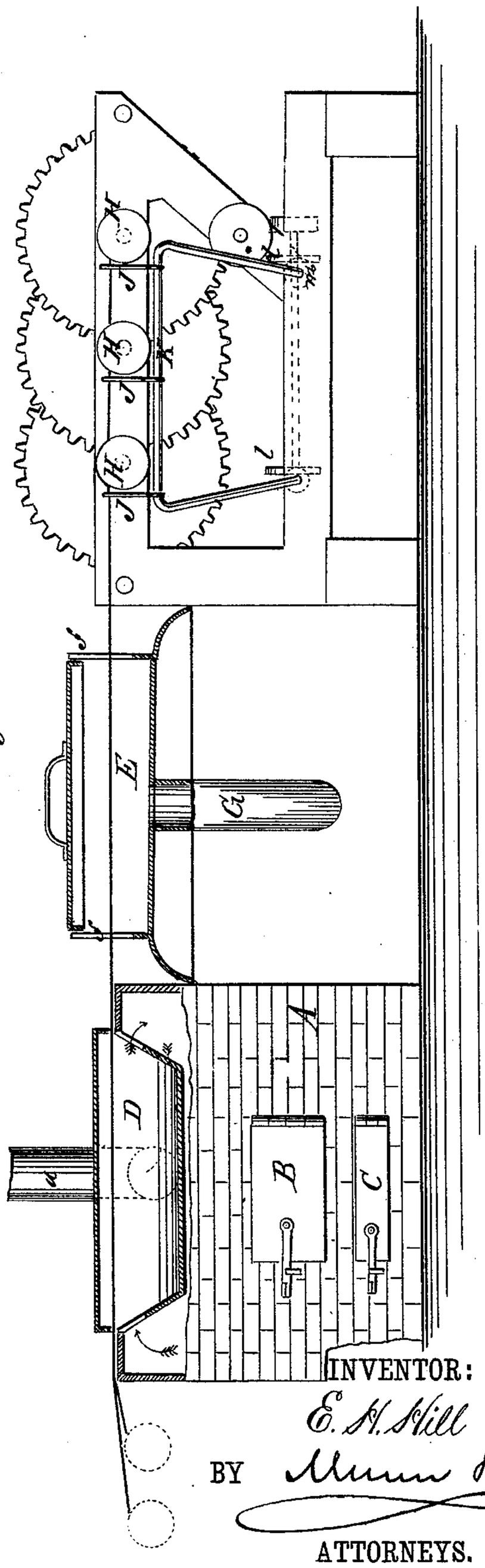


Fig: 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

EDWIN H. HILL, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN ANNEALING-FURNACES.

Specification forming part of Letters Patent No. **208,734,** dated October 8, 1878; application filed August 12, 1878.

To all whom it may concern:

Be it known that I, EDWIN H. HILL, of Worcester, in the county of Worcester and State of Massachusetts, have invented a new and Improved Annealing-Furnace, of which the following is a specification:

My invention relates to an apparatus for annealing and spooling wire at one operation, being more particularly intended for wire used on reaping-machines, but also applicable to other descriptions of wire.

The accompanying drawings illustrate a mode of carrying out my invention.

Figure 1 represents a top view of an apparatus embodying my improvements. Fig. 2 is a side view of the same, partly in section, through the line *x x* of Fig. 1.

Similar letters of reference indicate corresponding parts.

A represents the furnace; B, the door of the fire-chamber, and C the door of the ash-box. The annealing-pot D rests immediately over the fire-chamber, and is arranged so that it may be readily removed. It is provided with a hinged lid or cover, and it has openings at its ends for the passage of the wire through it. The fire-chamber B and smoke-pipe or chimney *a* are so arranged with relation to each other and to the annealing-pot D that the flame passes under and through said annealing-pot before reaching said chimney, entering the opening at one end and leaving it at the other, as indicated by the arrows.

The annealing-pot may be filled with fine charcoal up to the edges of the openings at the ends, for the purpose of giving additional heat to the wires as they pass through said pot. Adjoining the furnace is the air-chamber for cooling the wire after it is annealed. This air-chamber consists of a box or casing, E, provided with a lid or cover, and having at its ends a series of slots or notches, *f*, for the passage of the wire. An air-pipe, G, communicates with the chamber E and supplies it constantly with air, which can escape from said chamber only through the slots or notches *f*.

The spooling apparatus may be constructed in various ways. As here shown the spools H are carried by shafts *h*, which are connected with gearing for rotating them. A series of guides, consisting of forks J, are attached to a carrier, K, which has a reciprocating motion imparted to it by means of cams *l* on a shaft, *m*, geared with the mechanism so as to give the proper motions at the proper times.

In the method heretofore employed for annealing and spooling wire the skeins of wire were annealed and then allowed to cool, after which the wire was wound upon spools.

In my invention the wire is wound upon reels, which are placed in a suitable frame at one end of the furnace. The strands of wire *s* are then drawn through the annealing-pot, where they are heated as they pass through the same, entering the opening at one end and leaving it at the other. From the annealing-pot the wires *s* are drawn through the air-box E, each wire passing through one of the slots or notches *f* at each end of the box. From the air-box the wires pass to the spooling apparatus, where each wire is wound upon the proper spool H, and all of them are guided by the guides J. When the spools H are full of wire they may be removed and replaced by empty ones.

I am aware that it is not new to anneal by subjecting the metal to cooling currents of air or to run wire through a pipe or box; but

What I do claim is—

In combination with an annealing-furnace, the air-box E, having movable cover, notches *f*, to separate the wires, and supply-pipe G, as shown and described.

EDWIN HUGHES HILL.

Witnesses:
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JOHN PHILIP STYFFE.