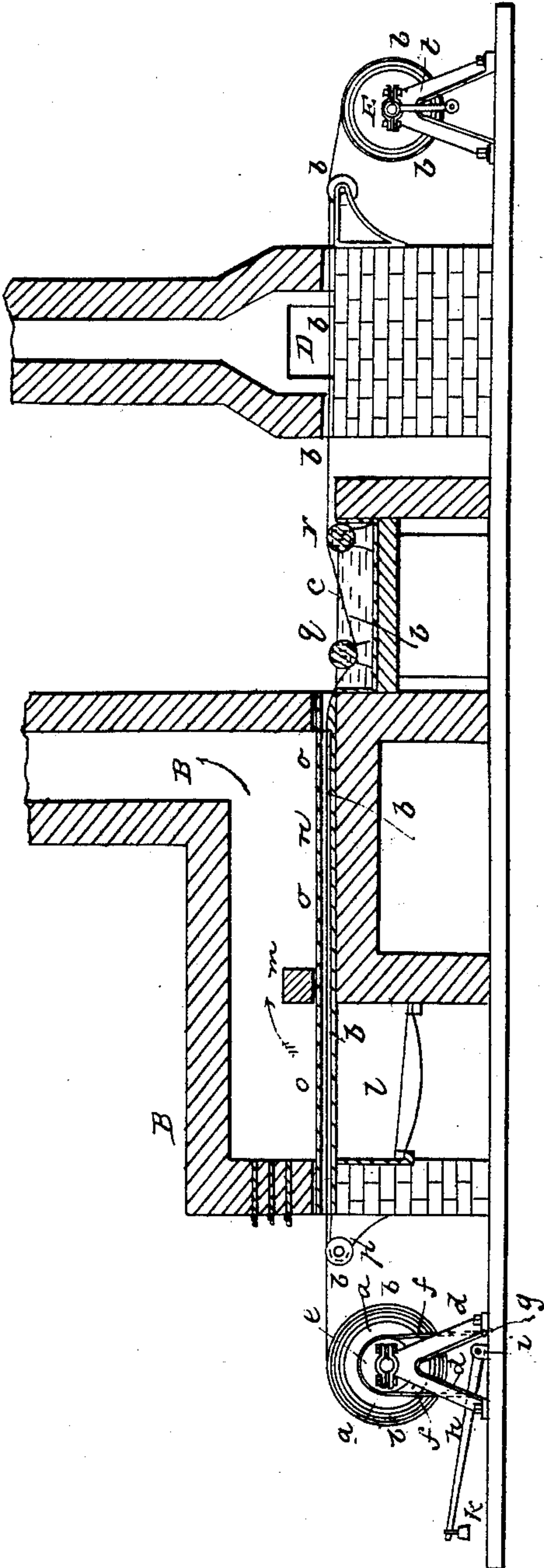


Tempering Steel.

No. 26,741.

Patented Jan'y 3, 1860.



INVENTOR

John Knight
by Attorney
J. P. Thompson

UNITED STATES PATENT OFFICE.

JOHN WRIGHT, OF SHEFFIELD, ENGLAND, ASSIGNOR TO JAMES CHESTERMAN, OF
SAME PLACE.

TEMPERING STEEL.

Specification of Letters Patent No. 26,741, dated January 3, 1860.

To all whom it may concern:

Be it known that I, JOHN WRIGHT, of Sheffield, in the county of York, in England, spring-maker, have invented Improvements in Preparing or Heating Strips of Steel for Hardening and Tempering; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing and to the letters and figures marked thereon.

My invention of preparing strips of steel for hardening and tempering consists in drawing them through a hot metal or fire clay tube to heat the strip preparatory to the usual passing of the same through a reservoir of oil or other fluid.

In the furnaces heretofore employed the strip of steel has been drawn directly through the furnace and in contact with the gaseous products of combustion. The quality of the steel is liable to be thereby deteriorated, and this I obviate entirely by drawing it through the tube as above stated, it being then out of contact with the said products of combustion. In addition to this advantage the steel not only acquires a more uniform degree of heat throughout its entire length but it is also more readily guarded against being over heated, whereby the quality would be greatly impaired, as is well known.

The annexed drawing represents, in vertical section, the manner of constructing a furnace with my improvement attached together with the necessary apparatus for conducting the operation of hardening and tempering in one continuous process, thereby employing my invention to advantage.

At (a) is a drum on which the strip of steel (b) is coiled previous to being hardened. Its axis (c) is supported upon a frame (d) and it has a brake drum (e) over which a strap (f) bears, controlled by a lever (h) centered at (i) and weighted as at (k).

The furnace B is generally of ordinary

construction, (l) being the fire place, (m) the bridge wall, and (n) the heat chamber beyond. Through this, extending from end to end, is placed a tube (o), which may be of iron, though I prefer to make it of fire clay or other earthy mineral. As seen, it is so situated as to be acted upon externally by the heat of the furnace throughout its entire length. The strip of steel passes through this tube, being conducted over a roller (p) to keep it in a central position, and from the opposite end it descends, having then become heated into a reservoir of oil C, into which it is guided under a roller (q) immersed therein. The strip is thence conducted over a roller (r) across the tempering furnace or hot plate D and over the roller (s) to the winding drum E.

The tempering of springs over furnaces or heated plates is well understood it being simply necessary in this case to regulate the heat and extent of the plate or furnace D and the proximity of the strip of hardened steel thereto according to the rate of travel of the strip of steel under operation so that it may be subjected to that heat which will give it the requisite temper.

In order to lead the first end of the strip of steel through the tube o I pass the leading wire or strip of iron back from drum E which is constantly affixed thereto; the first end of the steel strip is affixed to the leading wire or strip and is carried through by it, as will be readily understood.

I claim—

Preparing strips of steel for hardening and tempering by drawing the same through a metal or fireclay tube heated in a furnace constructed and arranged to operate substantially in the manner and for the purposes set forth.

JOHN WRIGHT.

Witnesses:

WM. REYNOLDS,
JOSEPH DAWSON.