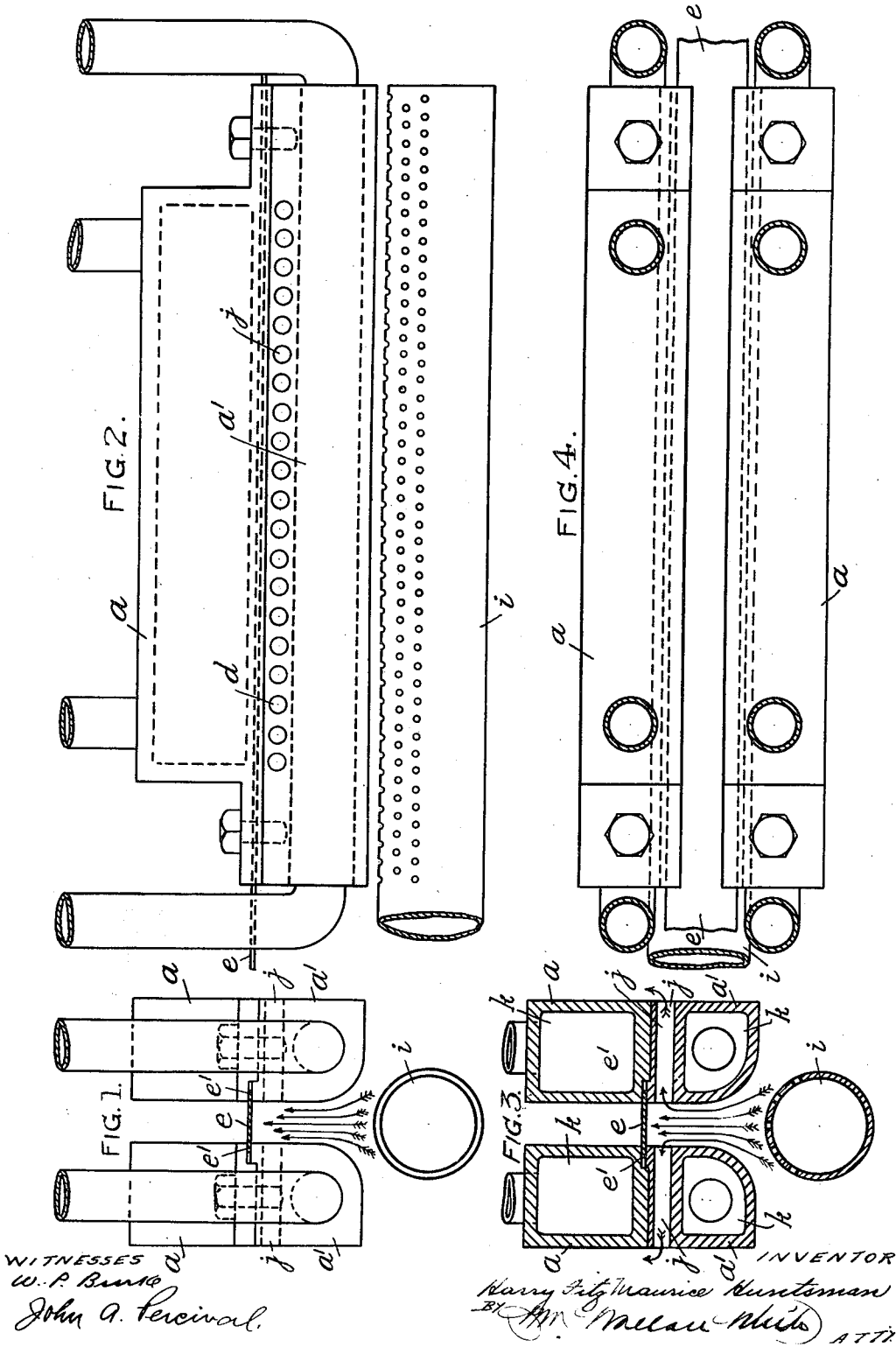


H. F. M. HUNTSMAN.
 APPARATUS FOR REMOVING THE HARDNESS FROM CERTAIN PORTIONS OF HARDENED STEEL STRIPS.
 APPLICATION FILED MAR. 7, 1910.

975,041.

Patented Nov. 8, 1910.



UNITED STATES PATENT OFFICE.

HARRY FITZ MAURICE HUNTSMAN, OF SHEFFIELD, ENGLAND.

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Specification of Letters Patent.

Patented Nov. 8, 1910.

Application filed March 7, 1910. Serial No. 547,829.

To all whom it may concern:

Be it known that I, HARRY FITZ MAURICE HUNTSMAN, subject of Great Britain, residing at Tinsley Park Road, Attercliffe, Sheffield, in the county of York, England, have invented new and useful Improvements in Apparatus for Removing the Hardness from Certain Portions of Hardened Steel Strips, of which the following is a specification.

Although my invention is applicable to the hardening of steel for a variety of purposes, it is more particularly adapted for the hardening of steel in strips, sheets, or sections, which are used in the manufacture of safety razor blades, knives, and the like, and consists in an improved apparatus for hardening such steel in various widths, thicknesses and lengths, leaving one portion of the steel soft and ductile while the other portion or portions can be brought up to any degree of hardness; thus a strip of thin steel may be hardened on one edge leaving the back soft, or it may be hardened on both edges leaving the center soft, or it may be hardened in the center leaving both edges soft.

The nature of my invention will be better understood on reference to the accompanying sheet of drawings in which—

Figure 1, is a front elevation of two pairs of guides and appliances employed for reducing the center part of a hardened strip to a soft and ductile condition leaving the edges of the strip hard. Fig. 2, is a side elevation. Fig. 3, is a sectional elevation, and Fig. 4, is a plan of the same.

The same letters refer to similar parts throughout the several views.

Referring to the drawing, I pass a hardened strip of steel *e*, between the surfaces of two pairs of guides, *a*, *a*¹, placed sufficiently apart to leave a portion of the strip in the center uncovered, the underneath portion of this strip is exposed to heat produced by a Bunsen gas burner, *i*, or other suitable means, as it is drawn between the previously mentioned guides. The edges, *e*¹, *e*², of the strip which pass between the guides are protected from the heat and their hardness is preserved while the center part of this strip is, by the action of the heat, reduced to a soft and ductile condition. In order to allow the heat to impinge on the under surface of the plate, I form transverse grooves or

holes forming flues, *j*, through the bottom guides to allow of the heat to escape laterally on each side.

When it is desired to leave one edge only of the strip hard, I then pass that edge between one pair of guides as before described leaving the remainder of the strip exposed to the action of the heat.

When it is desired to preserve the center of the strip hard and leave both edges soft, I then pass the strip between two guides which cover the center portion only, leaving the outer edges exposed to the action of the heat. The strip of steel so treated may be drawn through the passages between the guides on to a roll or between a pair of rolls, which would have a tendency to cool and straighten the strip.

In some cases I make provision to keep the surfaces of the guides cool where they come in contact with the part of the strip to be kept hard, this being effected by introducing water, air, or other cooling medium through internal cavities, *k*, *k*, formed for the purpose.

What I do claim and desire to secure by Letters Patent is.

1. In an apparatus of the class described, in combination, a pair of guides adapted to receive the edge portions of a strip of hardened steel leaving the central portion thereof exposed and a source of heat positioned adjacent to the exposed portion of said strip, said strip and source of heat being movable with respect to one another.

2. In an apparatus of the class described, in combination, means adapted to receive a portion of a strip of hardened steel leaving a portion thereof exposed, and a source of heat positioned adjacent to the exposed portion of the strip for directing a heated medium against the same, said means provided with passages for allowing the heated medium to escape therethrough.

3. In an apparatus of the class described, in combination, oppositely positioned means adapted to receive the opposite edges of a strip of steel, said means being spaced from one another to leave the central portion of the strip exposed, and a source of heat positioned adjacent to the exposed portion of the strip.

4. In an apparatus of the class described, in combination, oppositely disposed pairs of guides adapted to receive the edges of a

strip of steel, said pairs of guides being spaced from one another to leave a portion of the strip exposed, and a source of heat positioned at one side of said exposed portion, 5 said guides being provided with passages for the escape of the heated gases emanating from said source of heat.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HARRY FITZ MAURICE HUNTSMAN.

Witnesses:

MERTON RADFORD SMITH,
W. H. BAIRSTO.