H. WHITAKER.

APPARATUS FOR SINGEING FABRICS.

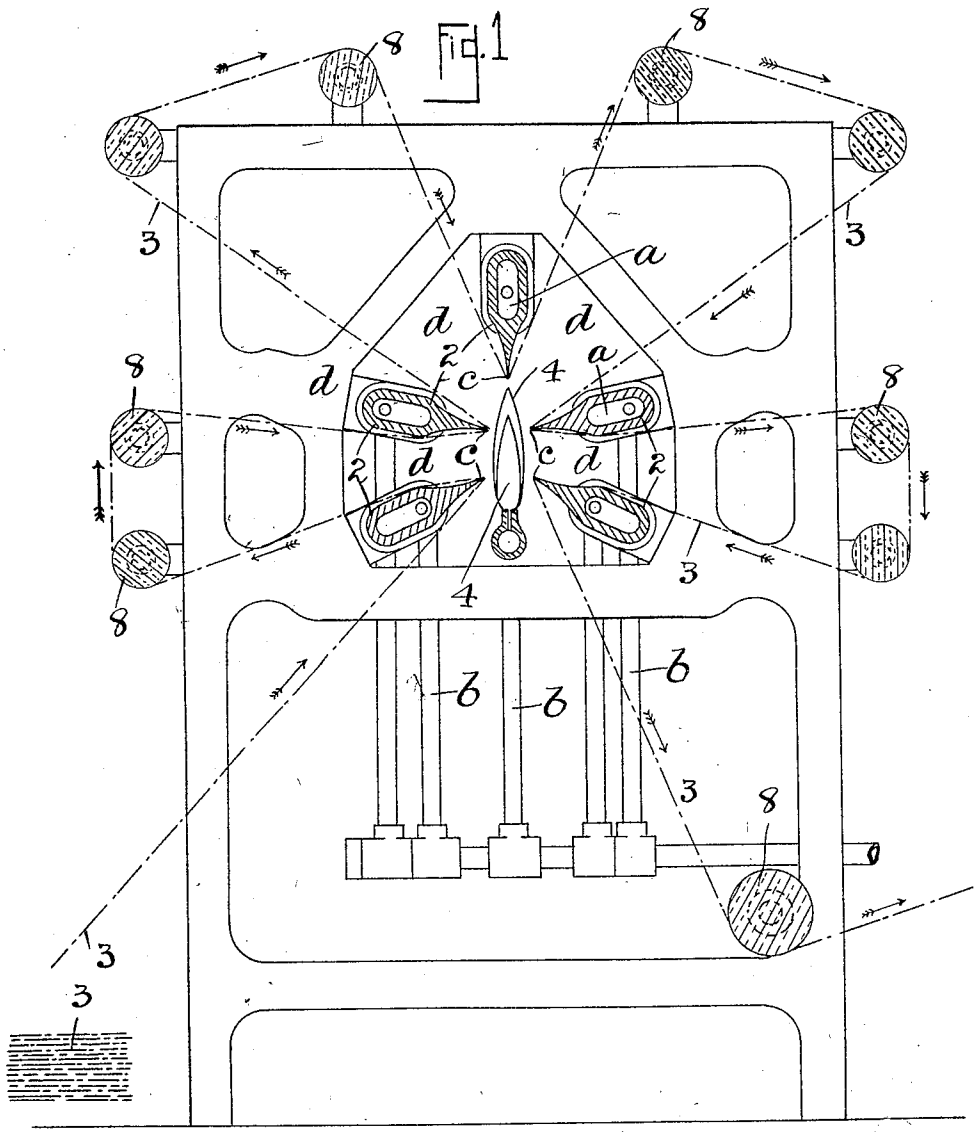
APPLICATION FILED FEB. 18, 1920.

1,350,582.

Patented Aug. 24, 1920.

2 SHEETS—SHEET 1.

Fig. 1



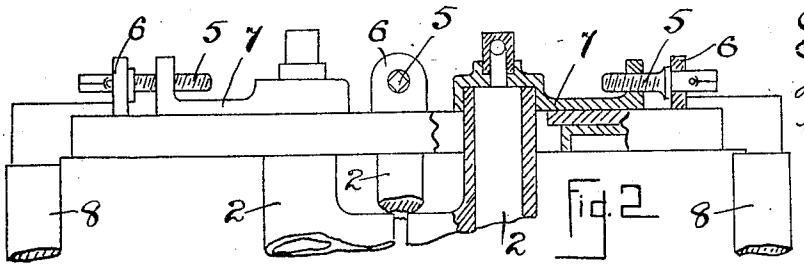


Fig. 2

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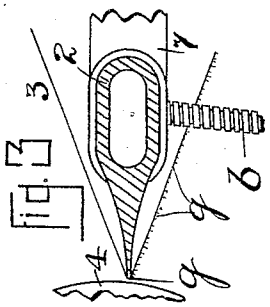

Fig. 3

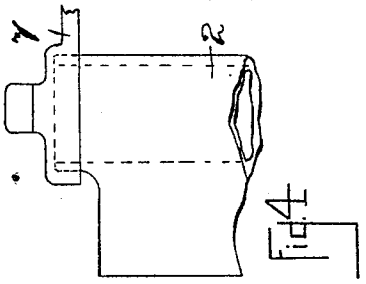

Fig. 4

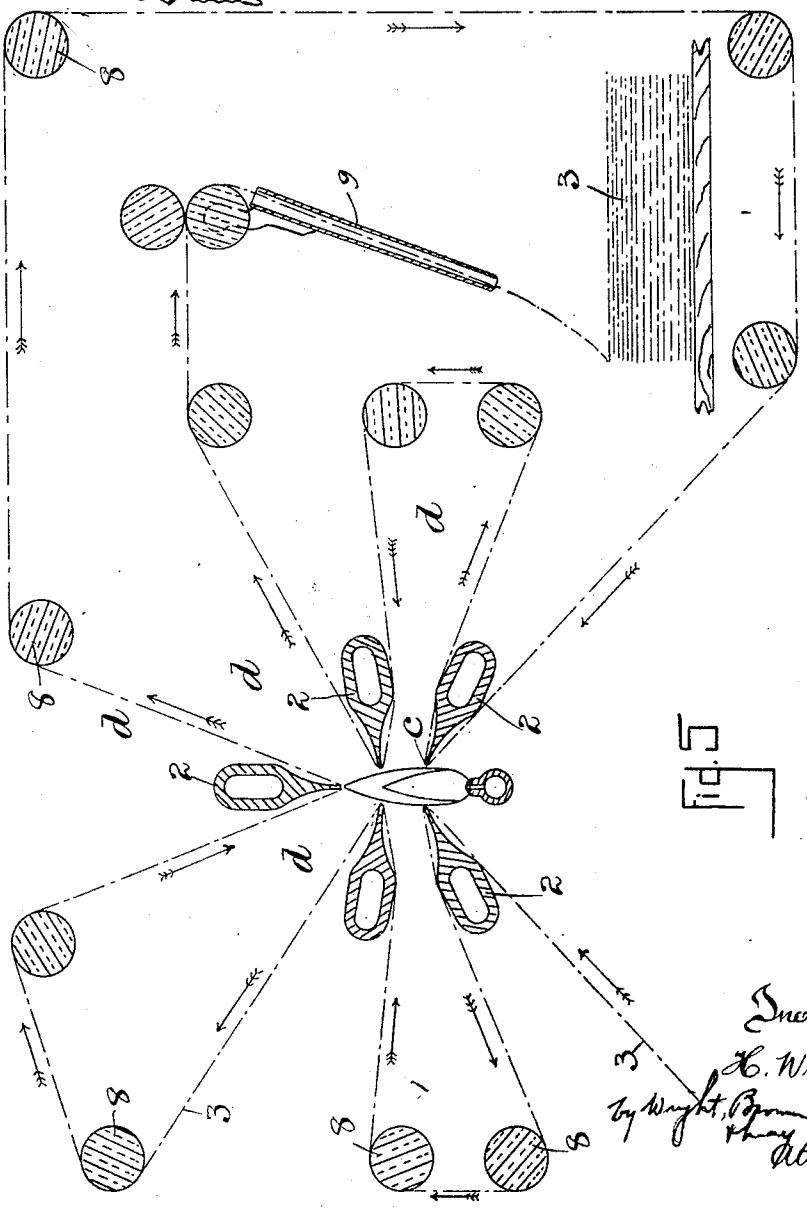

Fig. 5

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR SINGEING FABRICS.

1,350,582. Specification of Letters Patent. Patented Aug. 24, 1920.

Application filed February 18, 1920. Serial No. 359,705.

To all whom it may concern:

Be it known that I, HAROLD WHITAKER, a subject of the King of Great Britain, and resident of Hopewell House, Lightcliffe, near Halifax, in the county of York, England, have invented a certain new and useful Improvement in Apparatus for Singeing Fabrics, of which the following description, together with the accompanying sheet of drawings, is a specification.

It relates to apparatus for use in the singeing of fabrics by the employment of flames of gas, and consists in so constructing the fabric guiding-devices and arranging same relatively to the positions of the gas flames that the singeing process is carried out by the fabric being presented to the flame under such conditions as not to distort the flame, but to allow same to assume its natural shape and afford perfect access for the atmosphere to support combustion of the fibers that are burnt by the flame.

In the accompanying sheets of drawings which are illustrative of my invention:—

Figure 1 is a sectional end elevation of apparatus constructed in accordance with my invention.

Fig. 2 is a plan of the parts shown by Fig. 1.

Figs. 3 and 4 are sectional elevation and plan drawn to an enlarged scale of a certain part hereinafter explained.

Fig. 5 is a sectional elevation illustrative of a modification or extension of the use of my devices, the framework being omitted for the sake of clearness.

To attain the object of my invention, the fabric guiding devices 2 are hollow as heretofore so that the cavities *a* extending lengthwise said guiding devices may contain water for cooling purposes such water being supplied thereto through the flexible pipes *b* and discharged by similar pipes at the other end thereof. According to my invention the edges *c* of the guiding devices 2 over which the fabrics 3 have to take, are reduced to such proportions and are slightly concaved on their side faces (or are made as thin as possible) so that without being too thin for efficiently guiding said fabrics 3 (that is without cutting or damaging same) their said formation will enable several of said guiding devices 2 to be made use of in connection with one and the same flame 4 without distorting the said flame. The drawings show five of said guiding devices which are arranged to approach the flame 4 in the respective positions shown, two guiding devices on each side of the flame and symmetrically arranged in relation thereto, and a guide device arranged to approach the tip of the flame. The guiding devices 2 may be moved toward or from the flame 4 in order that their guiding edges *c* may be adjusted closer to or farther from said flame 4 as occasion may require.

The adjusting devices for each extremity of each of the guides 2 may consist of a screw 5 (see Fig. 2) which takes through a bracket 6 upon which the sliding bracket 7 is mounted this is made possible by the outer ends of said guide 2 being received by said bracket 7. The rotating of the screws 5 will cause the brackets 7 and the guide 2 to advance toward or to recede from the flame 4 according to the direction in which said screw 5 is rotated.

On account of the edges *c* being of the formation described, as the fabrics 3 pass over same, the fibers *g* extending from said fabrics are caused to so radiate (somewhat as shown by Fig. 3 in the drawings) that they are projected into the flame 4 to the exact extent desired in order to be thereby entirely removed without the surface of the fabrics 3 being in any way damaged by the actions of said flame 4.

By the guiding devices 2 being of the formation illustrated they may occupy such positions relatively with each other, that the fabrics 3 passing over same and over the several guiding rollers 8, have between each of their folds a comparatively large open space as shown at *d*—*d* by Fig. 1 thus the circulation of air in order to support combustion as well as to assist in the removing of the dust or refuse resulting from the burnt fibers is freely permitted. Whereas should the guiding edges *c* be of circular form or such shape as to present a considerable broad surface toward the flame even should said flame not be distorted thereby yet I find that the consumption of the fibers by said flame is prevented by reason of the inability of air to flow to that part to support combustion.

As is before stated the series of guiding devices 2 may be arranged as shown by Fig. 1 around or in proximity to the entire outer surfaces of the flame 4 or only such portion

thereof as may be found advantageous while further than this the fabrics 3 may be taken along or over, say, three of said surfaces as shown by Fig. 5 and then carried forward over suitable rollers 8 in such manner that the fabric is brought into contact with the opposite side of the flame and presenting the opposite side of the fabric thereto so that the other side of said fabrics will pass over two of said guiding surfaces thus both sides of the fabrics will be singed by one and the same gas flame 4.

The carrying of the fabrics through the apparatus described is effected by the rotary rollers 8 certain or all of which may be rotated by any suitable belt or other driving devices, while when passing beyond said rollers 8 said fabrics may be received by cutting or folding mechanism 9 as shown by Fig. 5 which comprises a member having spaced walls, the member being adapted to swing back and forth about a pivot, the cloth passing between the spaced walls and being folded and piled in laps one on top of the other.

Such being the nature and object of my said invention, what I claim is:—

1. A device for singeing fabrics comprising a burner, a series of fixed guides having thin wedge-like edges grouped about the space occupied by a flame projecting from the burner, a series of guiding rollers arranged to coöperate with some of the fixed guides in presenting one side of the fabric to portions of the flame, and another series of guiding rollers arranged to coöperate with the other fixed guides in presenting the opposite side of the fabric to other portions of the same flame so that both sides are singed during a single pass of the fabric over the flame.

2. A device for singeing fabrics comprising a burner and a series of guiding devices having thin wedge-like edges across which the fabric may be passed, said edges being grouped about the space occupied by a flame projecting from the burner and arranged to conform to the normal shape of the flame without distorting the latter.

3. A device for singeing fabrics comprising a gas burner, a plurality of guiding devices having their wedge-like portions over the edges of which the fabric may be passed arranged to present the fabric in close proximity to the flame of the gas burner, said wedge-like portions having concaved faces, pairs of spaced rollers arranged in relation to certain of said guiding devices so that a web of fabric may be alternately wound over said guiding devices and a pair of spaced rollers thereby affording a space of considerable extent between the portions of the fabric.

4. A device for singeing fabrics, comprising a burner, a series of guiding devices arranged to present a fabric passed thereabout to the flame of the burner, said guiding devices comprising thick hollow portions through which a cooling substance may circulate and thin wedge-like guide edges around which the fabric may be passed.

5. A device for singeing fabrics, comprising a burner, a series of guiding devices arranged to present a fabric passed thereabout to the flame of the burner, said guiding devices comprising thick hollow portions through which a cooling substance may circulate and thin wedge-like guide edges around which the fabric may be passed, and tubes for supplying fluid to said hollow portion.

6. A device for singeing fabrics, comprising a burner, a series of guiding devices arranged to present a fabric passed thereabout to the flame of the burner, said guiding devices comprising thick hollow portions through which a cooling substance may circulate and thin wedge-like guide edges around which the fabric may be passed, and means for folding the cloth when singed.

7. A device for singeing fabrics, comprising a burner, a series of guiding devices arranged symmetrically about the flame of said burner and in position to present a fabric wound about the guiding devices in close proximity to said flame.

8. A device for singeing fabrics, comprising a burner, a series of guiding devices arranged about the flame of said burner and in position to present a fabric wound about the guiding devices in close proximity to said flame, the guide devices being provided with thin wedge-like portions having concave faces over which the fabric is lapped, whereby a wide space is presented between each pair of approximate guide devices.

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