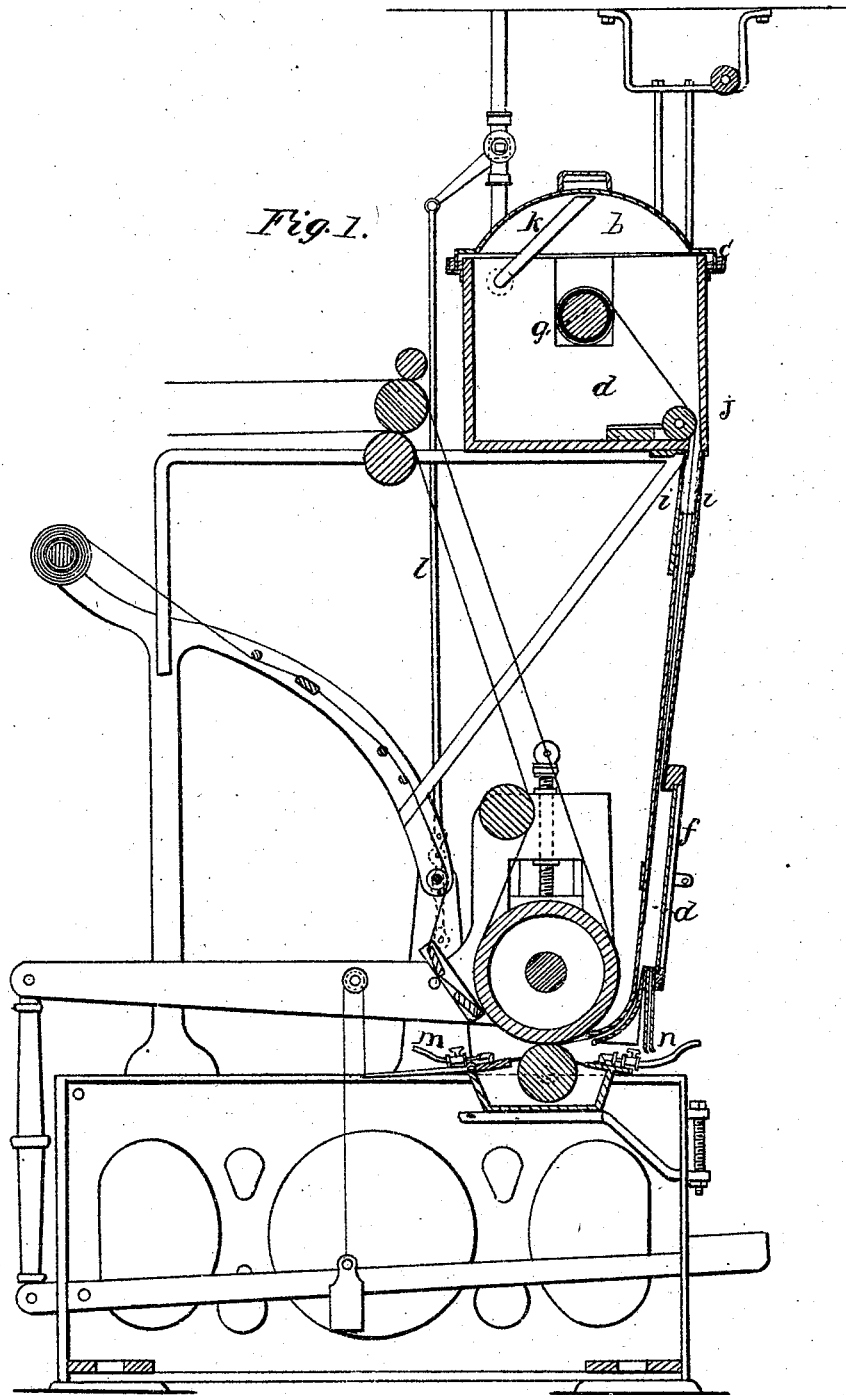


Sheet 1 of 4 Sheets.

B. Woodcroft
Printing Calico.

N^o 5,064.

Patented Apr 17, 1847.



Witnesses
John Black
Joseph M. M. M.

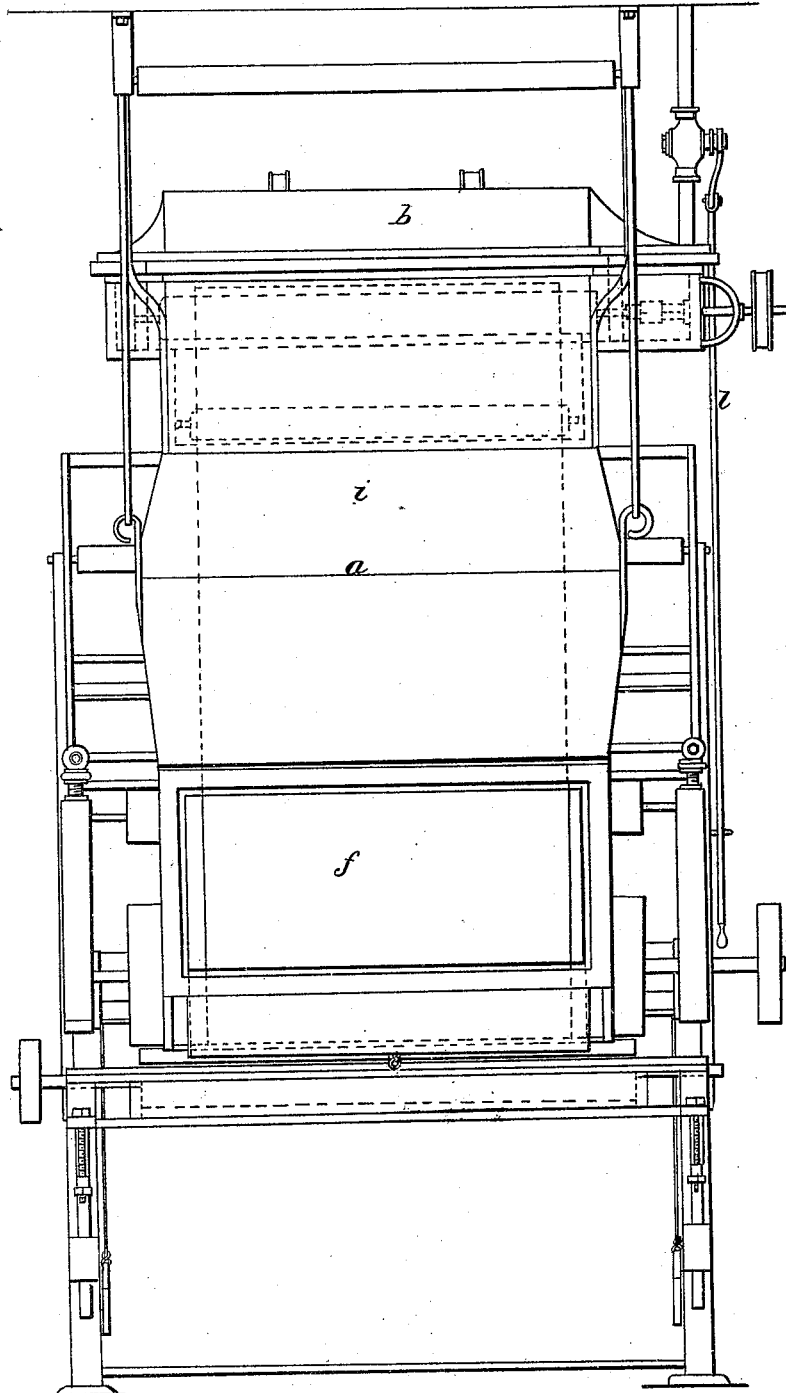
Inventor
Berunt Woodcroft

Sheet 2, of 5 Sheets

B. Woodcroft.
Printing Calico.

N^o 5,064.

Fig. 2. Patented Apr. 17, 1847.



Witnesses
John C. Cook
Joseph Margus

Inventor
Bennet Woodcroft

*B. Woodcroft.
Printing Calico.*

No 5,064.

Patented Apr 17, 1847.

Fig. 6.

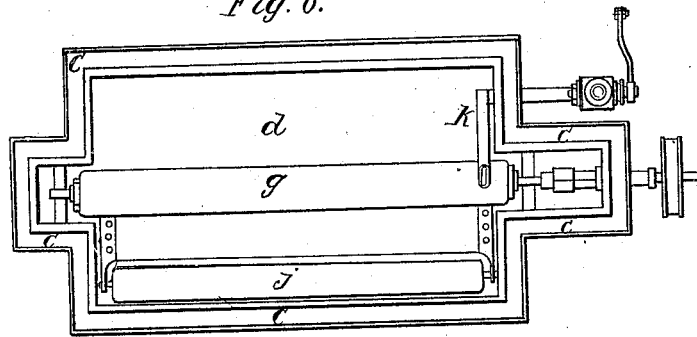


Fig. 5.

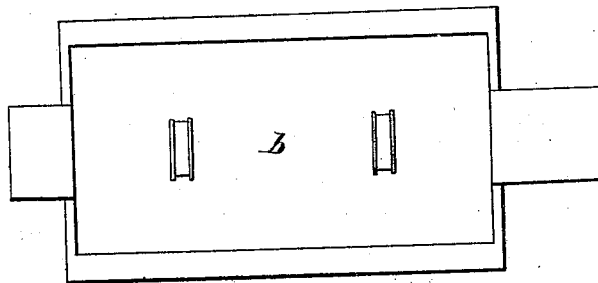


Fig. 3.

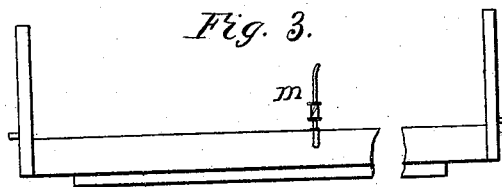
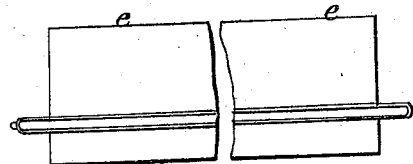


Fig. 4.



*Witnesses
John Alcock
Joseph Maynard*

*Inventor
Benjamin Woodcroft*

It is not to be printed.

Sheet 4, 4 Sheets

B. Woodcroft. Printing Calico.

N^o 5,064.

Patented Apr. 17, 1847.

Fig. 7.

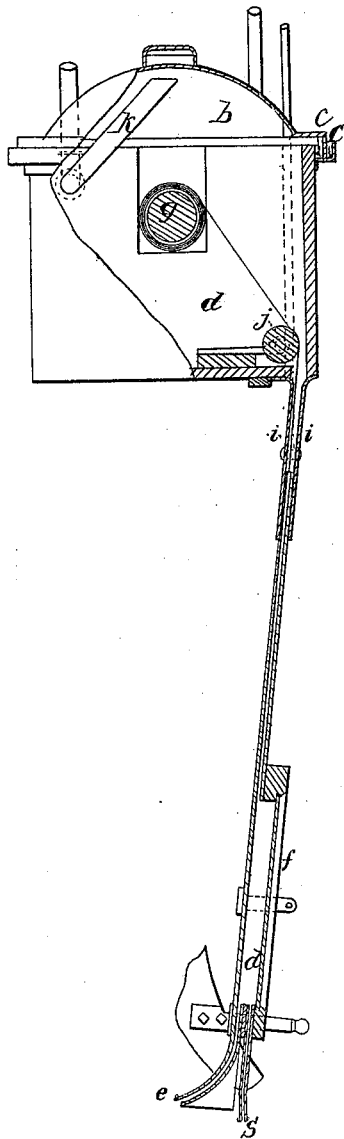
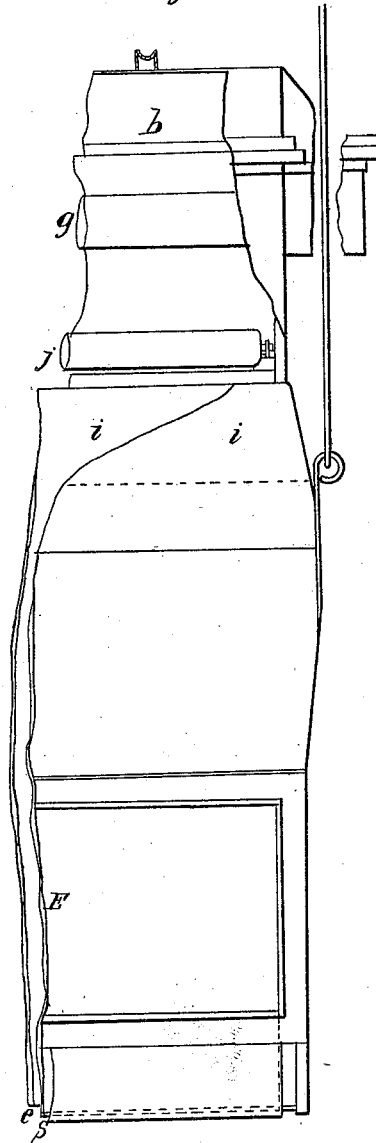


Fig. 8.



Witnesses
John Black
Joseph Mangum.

Inventor
Benjamin Woodcroft.

UNITED STATES PATENT OFFICE.

BENNET WOODCROFT, OF MANCHESTER, ENGLAND.

CALICO-PRINTING.

Specification of Letters Patent No. 5,064, dated April 17, 1847.

To all whom it may concern:

Be it known that I, BENNET WOODCROFT, of Manchester, in the county of Lancaster, England, a subject of the Queen of Great Britain, have invented or discovered a new and useful Invention of an Improved Mode of Printing Certain Colors on Calico and other Fabrics; and I do hereby declare that the following is a full and exact description thereof.

My invention consists in the application of an improved gas apparatus to a calico printing machine which apparatus contains the artificial atmosphere or gas deprived or devoid of free oxygen with which the whole room has heretofore been filled in which the operations have been carried on and which apparatus is made to deliver or distribute the said gas on the color used and on the fabric (while it is being printed with deoxidized indigo to produce a blue color or with deoxidized indigo combined with other materials to produce other colors) wherever it is desirable to displace the atmospheric air or to prevent its injurious action on the color or fabric without involving the necessity of placing the printing machine the fabric to be printed the printing materials and the workmen in a room or chamber filled with the artificial air or gas as heretofore practised and I the said BENNET WOODCROFT do hereby describe the manner in which my said invention is to be performed by the following statement thereof reference being had to the drawing annexed and to the figures and letters marked thereon, that is to say.

Description of the drawing.—Figure 1, represents a side view in section of an ordinary calico printing machine with one roller for printing one shade of blue with my improved gas apparatus attached and by which my improved mode of printing with deoxidized indigo and its compound is effected. Fig. 2 represents a front view of parts of the same machine and gas apparatus. Fig. 3 represents in plan a pair of shears of a cleaning doctor with a gas pipe fixed to it through which gas is delivered on to the surface of the color in the color box and also into that portion of the color which is taken up by the cylinder to the doctor. Fig. 4 is a plan of what I call the swinging gas case cut through at the line *a* in Fig. 2. Fig. 5 represents in plan the lid of the upper part of the gas case. Fig. 6 represents in plan the upper part of the gas case with the lid

removed. Fig. 7 a side sectional view of the whole gas apparatus on an enlarged scale. Fig. 8 represents a front view of Fig. 7 showing parts of the gas apparatus on a similarly enlarged scale. Figs. 1, 2, 3, 5 and 6 are drawn to the scale on the drawing and Figs. 4, 7, and 8, are drawn to a scale double that size.

Similar figures and letters are used to denote similar parts throughout the drawing. *b*, is the lid of the gas case which is made of tin.

c is a channel which runs around the top of the gas case *d* containing water in which channel of water the lower part of the lid rests forming a water lute and thereby prevents all contact between the air in the gas case and the external air at any other point than at the lowest ends of the case.

d represents the inside of the gas case which has no opening to the external atmosphere except at the bottom *e* and mackintosh tube *S* (in Figs. 7 and 8). That part of the gas case in which the printed fabric is wound on to it, roller *g* after being printed is also made of tin strengthened by being united to an outer case of wood. The lower part of the case which is also made of tin has a large sheet of plate glass *f* fixed in front through which the printed fabric can be seen as it is passing upward to be wound on to the roller *g* and in order to preserve the glass free from steam a wide tube of mackintosh cloth *S*, depends from the bottom of the glass frame to a point lower than the aperture *e* in order to prevent the escape of the gas and through which tube a stick with a small piece of cloth is introduced to wipe off the steam from the glass from time to time as occasion may require. The lower part of the case is suspended from two iron rods and eyes and the center part of the case marked *i i* between the upper and lower parts of it is made of mackintosh cloth so as to act the part of a joint and by its flexibility allow the lower part of the case to swing and when not in use to be raised nearly on a level with the guide roller *j* in order to be out of the way of the printer when the machine is wanted to print other colors than those effected by my improved mode.

k is a gas pipe in communication with a gasometer containing coal gas which gas I prefer and use for my improved gas apparatus.

l is a rod by which the tap is opened to

let gas into the case *d* which gas forces the atmospheric air out of the case at the points *e* and *s*, and to insure the absence of all atmospheric air I have a current of gas always passing through the case during the operation of printing as will be hereafter explained. This rod *l* has a number of gage holes through it at the lower end which holes pass on to a pin fixed to the machine side by which the gas is let into the case and regulated as to quantity.

m and *n* are two gas pipes by which gas is passed through the cleaning doctors onto the color to prevent as much as possible the oxidation of the color, but I would observe that I do not consider it indispensable to have gas introduced at *m* and *n* though I think it better to do so. It is in the chamber *d* where the absence of free oxygen is of greatest importance in my improved process. From this before described arrangement it will result that if gas be admitted into the gas case *d* through the pipe *k* until the whole case be filled and at the same time the cocks of the pipes *m* and *n* be opened and the printing machine set in motion the winding up of the fabric on the roller *g* will as it increases in bulk continue to displace sufficient gas to cause a continuous jet of gas into the angle in front of the nip of the rollers and thus effectually displace and exclude the atmospheric air therefrom while the gas emitted at the back of the roller performs the same office there with reference to the color in the color box and the fabric progressing to the nip of the rollers.

Having thus described the nature of my said invention and the best means I am acquainted with for performing the same I

would observe that other arrangements of printing machinery may be used and that I do not confine myself to the exact details of the gas apparatus herein shown and described which may be either attached to or detached from the printing machine and also that any other suitable artificial atmosphere which is devoid of or deprived of free oxygen may be used in place of coal gas for filling the chamber *d* and thereby displacing and excluding atmospheric air during such parts of the process of printing in such colors as aforesaid as may be desirable. But

What I claim as my invention is—

Such an application of gas apparatus to calico printing machinery for producing the colors I have named as will cause coal gas or any other suitable gas deprived of or devoid of free oxygen to be delivered or distributed upon the color and the fabric under operation in manner aforesaid to the exclusion or displacement of atmospheric air so as to prevent the injurious effects arising from the presence of oxygen at certain parts of the process without exposing any part of the printing machine or fabric to the action of the gas except where its presence is actually useful to the production of the effect required and without the necessity of the workmen employed performing their operations in a room or chamber filled with such gas as aforesaid which has been the case heretofore.

. BENNET WOODCROFT.

Witnesses:

JOHN ALCOCK LINCOLN,
JOS. MARQUETTE.