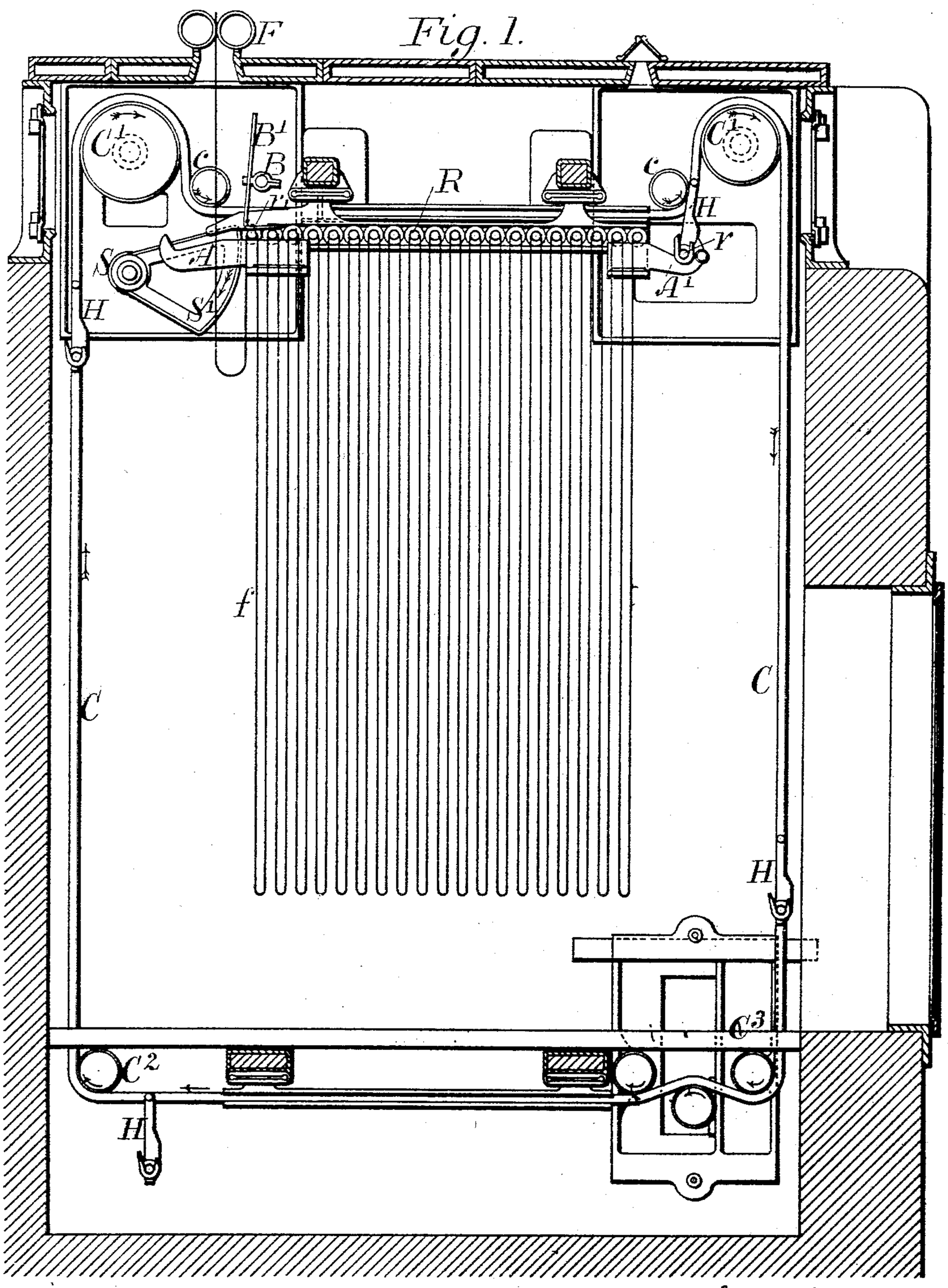
(No Model.) 2 Sheets—Sheet 1.

# W. MATHER & D. P. SMITH.

## APPARATUS FOR STEAMING, AGING, AND DRYING FABRICS.

No. 504,602. Patented Sept. 5, 1893.

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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## APPARATUS FOR STEAMING, AGING, AND DRYING FABRICS.

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*Fig. 2.*

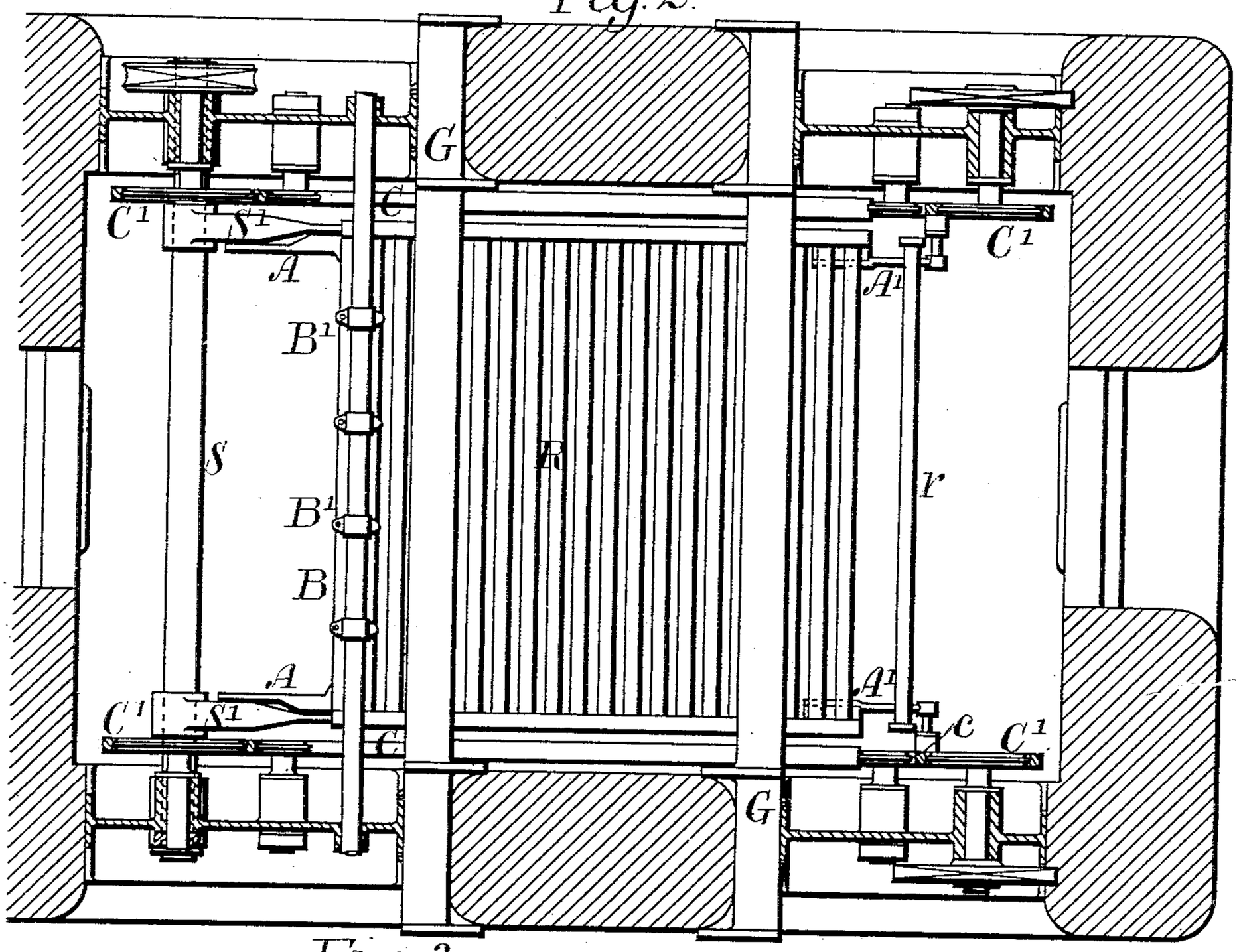



*Fig. 3.*

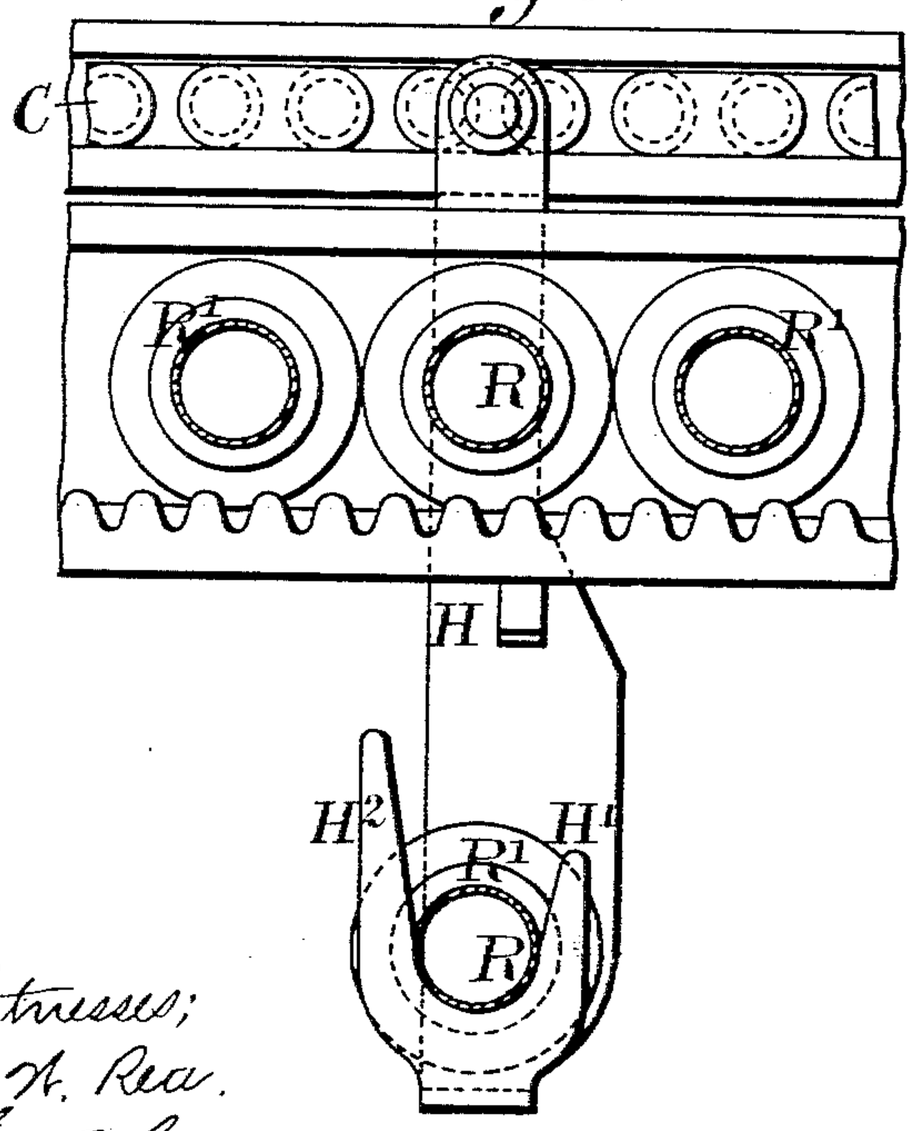
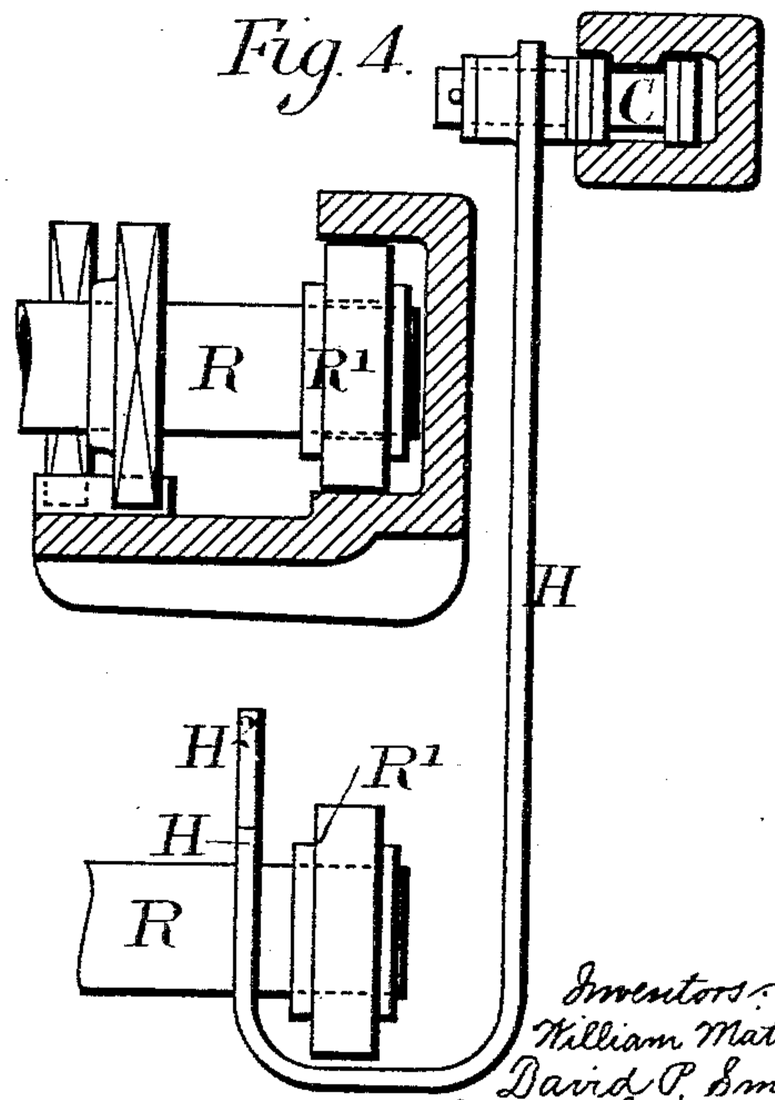



*Fig. 4.*

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# UNITED STATES PATENT OFFICE.

WILLIAM MATHER AND DAVID PICKEN SMITH, OF MANCHESTER, ENGLAND,
ASSIGNORS TO MATHER & PLATT, LIMITED, OF SAME PLACE.

## APPARATUS FOR STEAMING, AGING, AND DRYING FABRRICS.

SPECIFICATION forming part of Letters Patent No. 504,602, dated September 5, 1893.

Application filed April 27, 1893. Serial No. 472,121. (No model.) Patented in England November 8, 1892, No. 20,117, and in France April 1, 1893, No. 229,102.

*To all whom it may concern:*

Be it known that we, WILLIAM MATHER and DAVID PICKEN SMITH, citizens of England, residing at Salford Iron Works, Manchester, in the county of Lancaster, England, have invented certain new and useful Improvements in Apparatus for Steaming, Aging and Drying Fabrics, (for which I have obtained Letters Patent in Great Britain dated November 8, 1892, No. 20,117, and in France dated April 1, 1893, No. 229, 102,) of which the following is a specification.

This invention relates to apparatus for steaming, aging and drying fabrics. For this purpose loose rods with fixed collars at their ends are placed horizontally side by side on rails at the top of a chamber supplied with steam, hot air or other fluid agent, the collars on the rods insuring certain intervals between them. An endless traveling chain travels along each side of the apparatus beyond the end of the rods its course being along the top, down the one end, along the bottom, and up the other end of the apparatus. To this chain are attached at intervals apart suitable appliances for taking hold of the ends of the rods and carrying them. At the front end of the apparatus the chain deposits the rod which it has carried up from below, and thereupon all the rods are by a cam or otherwise pushed onward the width of a rod. The farthest rod at the back end of the apparatus being thus pushed over the ends of the rails falls to a position where it becomes engaged with one of the appliances on the chain. By this it is carried down the end of the chamber, back along the bottom and up the front to be again deposited on the rails and to advance along with the others. The fabric is supplied by draw rollers near the rod at the front and it descends forming a loop in the chamber, hanging between the first of the row of rods and the fresh rod deposited by the chain. Thus fold of the fabric is formed after fold and these folds travel onward to the end of the chamber where the fabric is stripped off the successive rods by draw rollers or otherwise. The rods being loose can at any time be taken out of the apparatus for cleaning or repair.

Figure 1 of the accompanying drawings is a longitudinal section and Fig. 2 is a plan of apparatus according to this invention. Fig. 3 is a front view and Fig. 4 a side view to an enlarged scale of one of the chain hooks which carry the rollers.

The two endless chains C, one on each side travel over a pair of chain or sprocket wheels C′ which are driven from a suitable motor, and are guided by guide rollers $C^2$ and *c c* so as to take their course along the upper part of the apparatus, down the right hand end, along the lower part and up the left hand end of the chamber.

At $C^3$ are arranged pulleys for tightening each chain. Each chain carries several hooks each with a limb H extending down from the chain bent forward and upward to form in front a forked hook, the front prong H′ of the fork being lower than the hinder prong $H^2$. The space between the two prongs forms a bearing for one of the rods R each of which has at each end a collar R′ free to revolve which serves to keep the rods R a certain distance apart from each other.

At the upper left hand end of the apparatus there is a shaft S caused to revolve slowly but proportionally to the travel of the chains by worm or other suitable gear. On this shaft near each end is fixed a cam S′ and at the side of each cam is a stationary inclined blade A with a hooked end.

On a spindle B above the first pair of rods on the track is fixed a blade B′ which is bent backward and bears on the first of these rods. Also above the cam shaft there is a pair of revolving feed rollers F.

At the right hand end of each track there is a stationary inclined blade A′ with a hooked end.

The apparatus operates as above described, that is to say, assuming that *r* one of the rods R is lying on the incline A′ as shown, the chains as they travel along bring a pair of hooks H under the collar of *r* the front prong H′ passing under *r* but the hinder prong $H^2$ taking *r* along with it. The rod *r* thus engaged with the pair of hooks is carried down the right end along the bottom and up the left end of the chamber and finally is lodged on the inclined blades A, the hooks H then

hanging so low that their hinder prongs $H^2$ pass under the rod. During the time when the rod is traveling with the chains and lying on A, the feed rollers F pass down fabric *f* which hangs in a loop from the first rod *r'* of the row on the track, the blade B' preventing this rod from being turned backward by the suspended loop of fabric. Sufficient fabric having been fed to form a deep loop the cams S' revolving in the direction of the arrow push the rod along the inclines A on to the first part of the track thus pushing onward all the rods already on the track and causing the farthest of these to drop on to the inclines A' whence it is taken by the chains as already described, the loop of fabric thus set free being drawn up by rollers or otherwise. Sometimes it is desirable to have the rods revolving as they travel forward. This may be done by fixing on them pinions gearing with racks fixed along the trucks. Or they may have worm pinions fixed on them gearing with worm spindles revolving at the side of each track.

In apparatus of the kind described especially when it is used for steaming the fabric suspended in the chamber, it is desirable to avoid any cold metal or other surfaces above the fabric as condensed moisture from these might drop on the fabric and soil it. When the chamber has to be crossed by girders such as G for carrying the tracks or staying the walls, these are preferably made hollow and kept heated by steam so as to prevent condensation on them.

Having thus described the nature of our invention and the best means we know for carrying the same into practical effect, we claim—

1. In apparatus for steaming, aging and drying fabrics, in combination with a chamber supplied with air, steam or other suitable gas or vapor, a set of transverse rods extending across the chamber with collars traveling along tracks at the sides of the chamber, a pair of endless chains caused to travel over guide rollers and having hooks suspended from them to carry one of the transverse rods, inclined blades at the ends of the tracks to receive the successive rods and a pair of cams to push the rods forward, all operating in conjunction with means for continuously feeding and withdrawing fabric substantially as described.

2. In apparatus for steaming, aging and drying fabrics, the combination with a series of transverse rods and a support therefor, of an endless chain provided with devices for taking said rods successively from said support, and a pair of suitably speeded revolving cams intermittently advancing said rods upon the support, substantially as described.

In testimony whereof we have signed our names to this specification, in the presence of subscribing witnesses, this 14th day of April, A. D. 1893.

WILLIAM MATHER.
DAVID PICKEN SMITH.

Witnesses:
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