# B. Saunders.

## Mach. for Sizing Yarn.

No. 43,627. Patented Jul. 19, 1864.

Fig. 2.

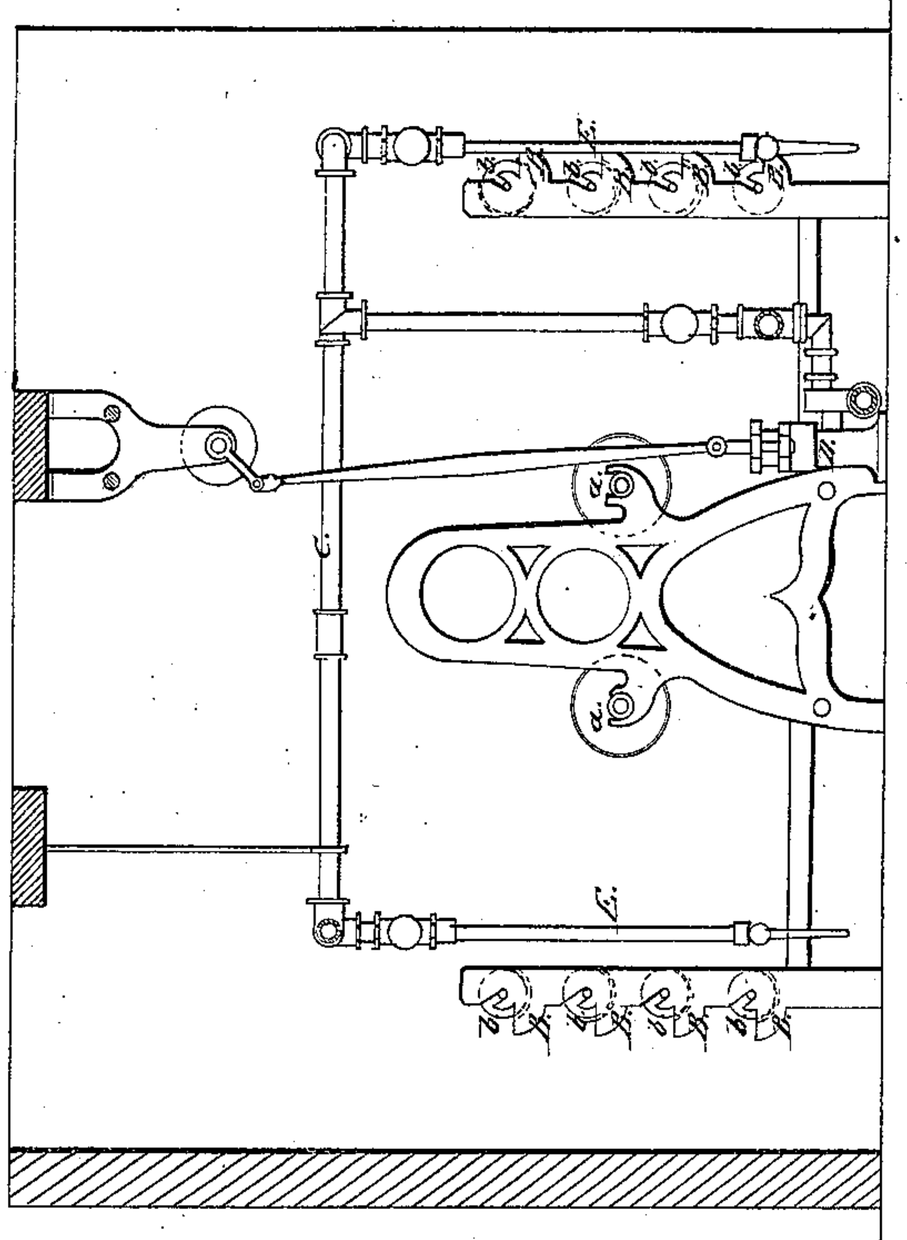
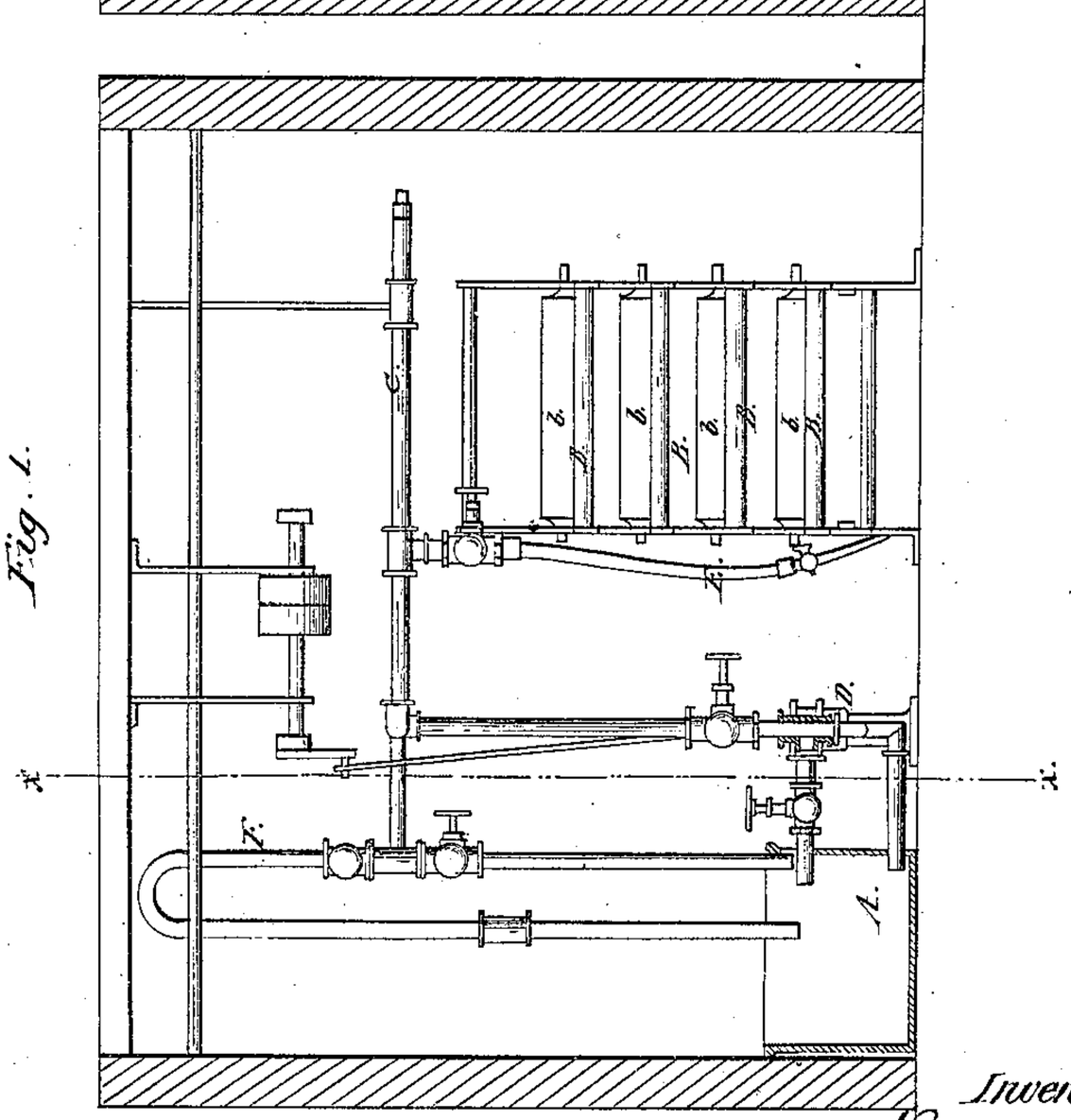



Fig. 1.

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN MACHINES FOR DRESSING OR SIZING YARNS.

Specification forming part of Letters Patent No. **43,627**, dated July 19, 1864.

*To all whom it may concern:*

Be it known that I, BENJAMIN SAUNDERS, of Nashua, in the county of Hillsborough and State of New Hampshire, have invented a new and useful Improvement in Apparatus for Sizing Yarns; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make use the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a transverse vertical section of my invention. Fig. 2 is a longitudinal vertical section of the same, the line *x x*, Fig. 1, indicating the plane of section.

Similar letters of reference indicate like parts.

This invention consists in the use of a rotary or other pump and a series of pipes of galvanized iron or other suitable material, in combination with the mixing-tank or with a reservoir connected therewith and with the several dresser-boxes in such a manner that the sizing contained in the mixing-tank can be easily and readily forced through the pipes to the several dresser boxes without the use of pails, dippers, or other similar implements, and by the constant current passing from the reservoir over all the dressers and back a thorough equalization and a continuous mixing of the sizing is effected.

A represents a mixing-tank or a reservoir connected with said mixing-tank, from which the sizing is distributed to the several dresser-boxes B. The dressers are constructed in the usual manner with drums *a* and a series of sizing-rollers, *b*, which run in boxes B, and said boxes are arranged one above the other, as represented in the drawings, or they may be placed in any other convenient position in relation to each other. Two or more dressers are arranged in line with each other, or side by side, or in any other convenient position, and a pipe, C, extends over the entire series, as clearly shown in the drawings. This pipe connects at one end with a pump, D, which communicates with the mixing-tank or reservoir A, and which is so arranged that by its action the contents of the tank can be forced through the pipe. The opposite end of said pipe leads back into the tank, and one or more flexible discharge-pipes, E, serve to introduce the sizing into the several dresser-boxes. Suitable stop-cocks inserted into the pipe C and its connections at various points enable the operator to control the current of liquid passing through said pipe.

By the action of the pump, which may be of any suitable construction, the sizing from the mixing-tank or reservoir connected therewith can be conveyed to the dresser-boxes in the easiest possible manner. The pump can be readily rigged up so that it will be operated by power, and no hand-labor is required for the purpose of conveying the sizing to the dresser-boxes, except that necessary to direct the discharge-spouts to the proper spot.

All tubs, pails, ladles, &c., usually employed for the purpose of conveying sizing to the dresser-boxes can be dispensed with. The danger of spilling the sizing, and the consequent waste, which is all but unavoidable in using tubs, pails, and ladles, is entirely avoided by my method of conveying the sizing to the dresser-boxes; and, furthermore, in consequence of the continuous current of sizing through the reservoir and pipes a perfect and uniform consistency of the sizing is effected, and the yarn is sized uniformly throughout and its tendency to chafe in the loom is lessened.

In order to obtain the desired pressure at the moment the branch valves are opened to let the size into the various troughs or boxes, the pipe C, on returning to the reservoir, forms a siphon, F, as clearly shown in Fig. 1. It is obvious that by increasing or decreasing the height of this siphon the pressure can be regulated to any desired extent.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A return-pipe, C, in combination with the pump D, or its equivalent, and size-tank A, or a reservoir connected therewith, substantially as herein specified, for the pur-

pose of keeping the size in continuous motion and to distribute it in a simple and easy manner.

2. The siphon F, or its equivalent, in combination with the return-pipe C, pump D, and tank A, substantially as herein specified, for the purpose of giving the requisite pressure at the moment of opening the branch valves to let the size into the various boxes or troughs.

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