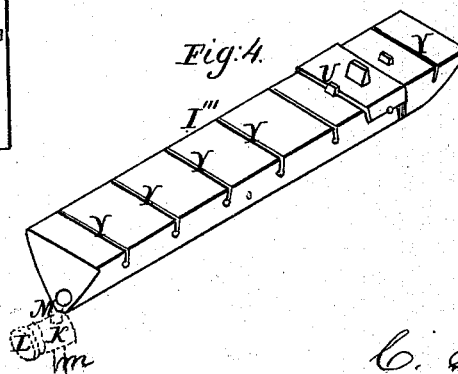
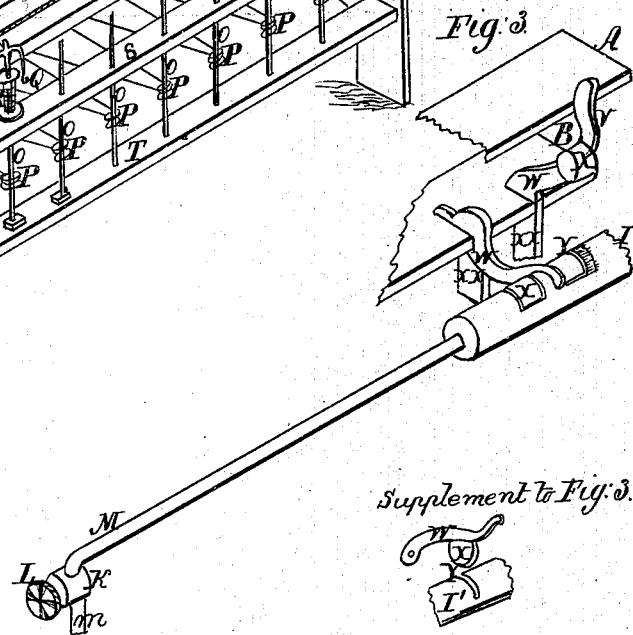
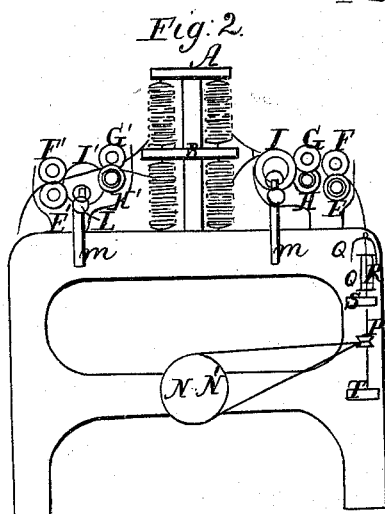
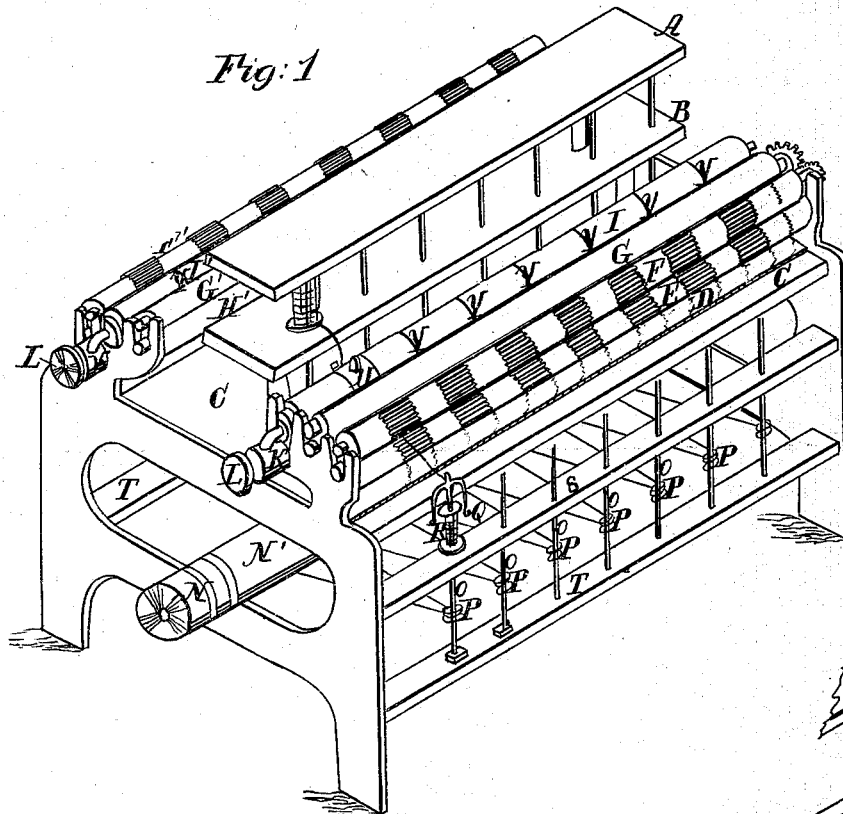


*C. S. Davis.*  
*Spinning Mach.*

*Nº 47,190.*

*Patented Apr. 11, 1865.*



*Witnesses;*  
*J. B. Wiley*  
*Jacob Stauffer*

*Inventor;*  
*C. S. Davis*

# UNITED STATES PATENT OFFICE.

CALEB S. DAVIS, OF LANCASTER, PENNSYLVANIA.

## IMPROVEMENT IN MACHINES FOR SPINNING FLAX.

Specification forming part of Letters Patent No 47,190, dated April 11, 1865.

*To all whom it may concern:*

Be it known that I, CALEB S. DAVIS, of Lancaster, in the county of Lancaster and State of Pennsylvania, have invented a new and useful Improvement on Flax-Spinning Machines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view in part of a spinning-frame, showing the several positions of the steam or hot-water chambers I I' (with their steam-pipe M) with respect to the carrying and retaining rollers. A B are the stands erected on the table c for the roving-bobbins. D is the roller-beam beneath the carrying-rollers E E, behind which are the back or holding rollers, G H, and behind both pair of rollers is the cylinder or chamber I. On the other side said cylinder or chamber, marked I', is placed between said two pairs of rollers. In either case there is a steam-pipe connected with said chamber, which pipe M may be extended the entire length of the chamber with perforations directly beneath the slots Y on the cylinder or chamber I; or made without such perforations when water is to be heated by said steam-pipe M. K represents the head for connecting the pipe M with a pipe, m, from the boilers; L, a valve for regulating the admission of steam or shutting it off; N, the driving-pulleys fixed upon the axle of a cylinder, N', from which pass endless cords around the pulleys P, fixed on the spindles O to drive the same; S, collar-rail for spindles; T, step for the same; R, the bobbin; Q, the flier usually employed.

Fig. 2 is a vertical cross-section of the same. Fig. 3 exhibits a modification of the chamber or cylinder I' when hot water is used, heated by the non-perforated steam-pipe M. Fig. 4 shows another modification of a chamber, L'', which may be employed when it is desirable to submit the roving to a longer action within the steam or hot-water chamber.

The nature of my invention consists in the introduction of a cylinder or chamber, I, in close proximity to the carrying and retaining rollers G H and E F. This chamber or cylinder is traversed at its base by a steam-pipe, M. (The steam may also be admitted directly

into the chamber through the head k and connecting-pipe m.) But it is preferable to continue the steam-pipe M the entire length of the chamber or cylinder I for the purpose of imparting heat and moisture to the rovings in spinning flax. By this means the heat and moisture so essential, if, indeed, not indispensable for fine flax-spinning, is applied to the rovings in such a manner as to obviate the waste or slopping of water caused by the use of open troughs, in which also the degree of heat is limited to the power of endurance of the hands of the operator when uniting a broken roving, whereas by my means the water may be heated to the boiling-point, as the hands are not exposed either to the action of the steam or water when rovings are broken, in order to replace them.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation, reference being made to the drawings, which clearly exhibit the position and construction of the several parts, so that a brief description will suffice.

When the rovings are to be submitted to the direct action of steam in their passage through the cylinder or chamber I in their respective slots Y, which are directly over a perforation or perforations, z, in the steam-pipe M, from which the steam issues, a sufficient degree of heat and moisture is imparted for flax-spinning. These slots Y in the cylinder or chamber I have a sliding cap, U, covering the top and sides, so as to leave an opening sufficient for the roving to pass smoothly through on each side at the lower edge of the cap. While this cap prevents the escape of steam above, it is readily slid aside so as to allow the united roving to enter by simply bringing it down into the slot and sliding the cap in place to cover the same. This cap may be made steam-tight by means of gum cloth or its equivalent.

I also contemplate to modify my cylinder or chamber I in such a manner as to adapt it for water heated by a non-perforated steam-pipe, M. Fig. 3 and the supplement to Fig. 3 illustrate this modification. The slots Y are slightly enlarged, and are closed by a cylindrical pulley or disk, X, with a groove on its edge, in which the roving lodges, and which acts both as a sinker and friction-pulley, and it should be galvanized. This disk or pulley X

has its pivot on the lever W. The lever itself moves up and down on a pivot in the upright *x x*. Thus a broken roving may be united by the operator and so placed that the grooved pulley immerses it on closing the slot and keeps it under the heated water in its passage through the chamber, obviating the use of rollers, under which the rovings are made to pass by the hands of the operator necessarily thrust into the water to accomplish it, besides greatly facilitating the operation. The location of this modified chamber and steam-pipe connection is the same on the frame as when steam alone is used for heating and moistening the flax rovings.

I am aware that brass and gutta-percha rollers have been used in connection with water-spinning where an open trough is used heated by means of a steam-pipe.

The great advantage of my invention is, first, the application of steam in the manner specified and the construction of the chamber used in water-spinning, so that by a slight modification heated water can be used instead of steam.

I do not broadly claim heating the water

by steam, as that is common; nor do I claim an open trough with side rods or rollers; nor do I claim a perforated steam-pipe for the purpose of throwing jets of steam on the arm or rovings after passing between the rollers to facilitate the twisting.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The direct application of steam to the rovings in their passage through a chamber, I, a chamber, I, having a series of slots, Y, and caps U, with a steam-pipe, M, having perforations *z* opposite the slots Y within said chamber, together with valve L, in combination with the connecting-pipe *m*, arranged and operating in the manner specified.

2. A modified chamber, I', with its slots Y enlarged, in combination with the disk or pulley X, lever W, and steam-pipe M, without perforations, constructed and operating in the manner and for the purpose specified.

C. S. DAVIS.

Witnesses:

WM. B. WILEY,

JACOB STAUFFER.