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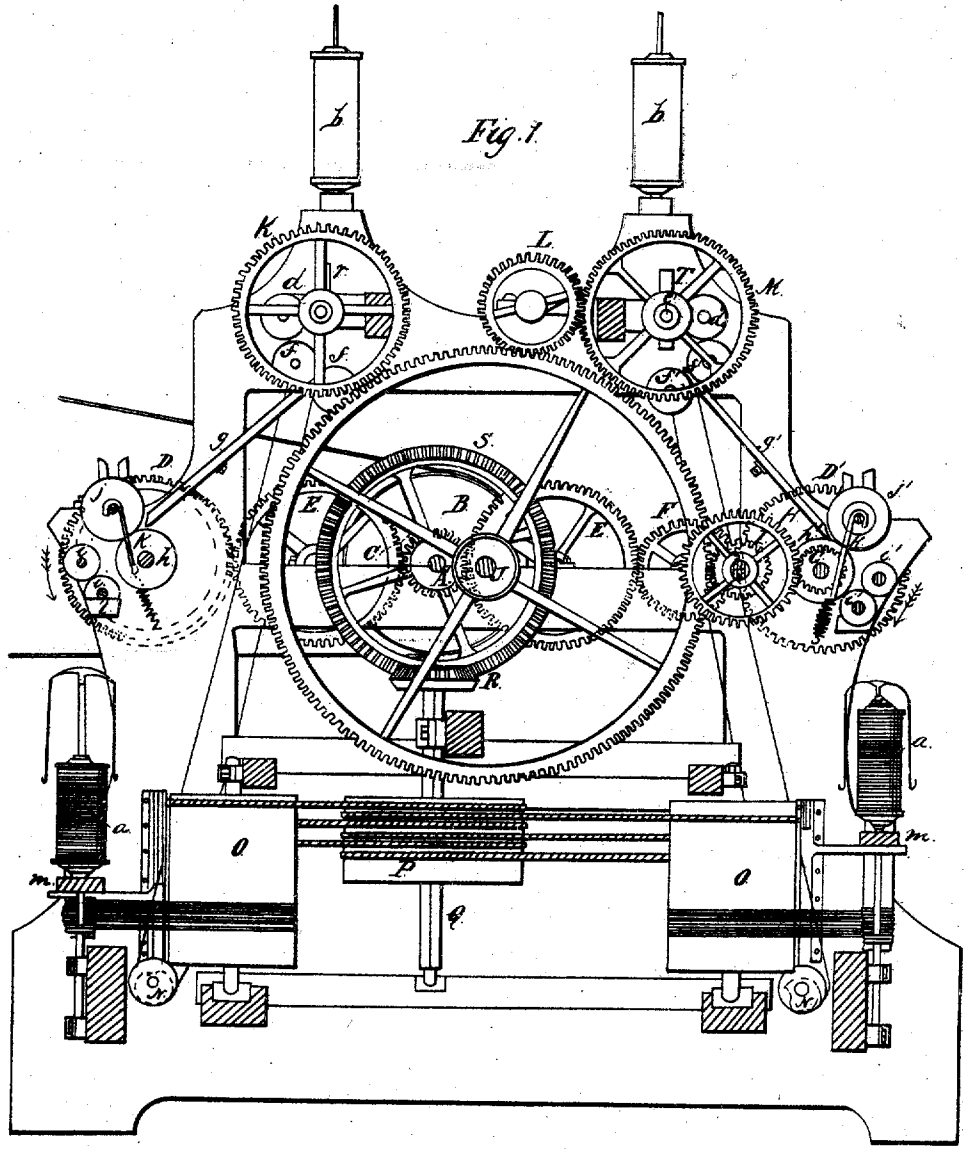
2216X

J. F. Chapins.

Spinning Mach.

Patented Nov. 8, 1814.

Fig. 1.



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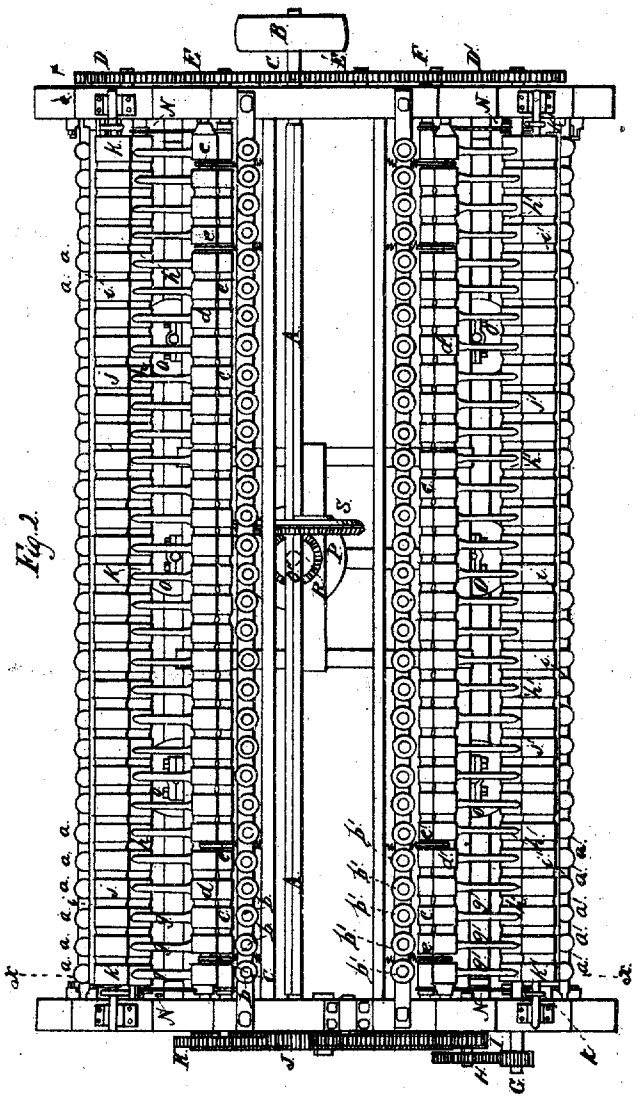


Fig. 2.

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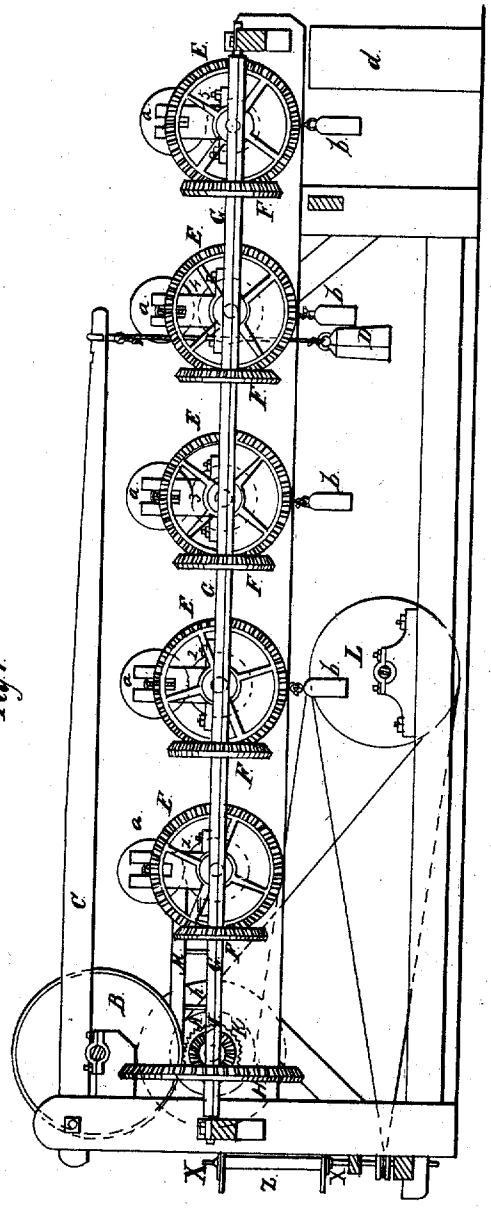


Fig 1.

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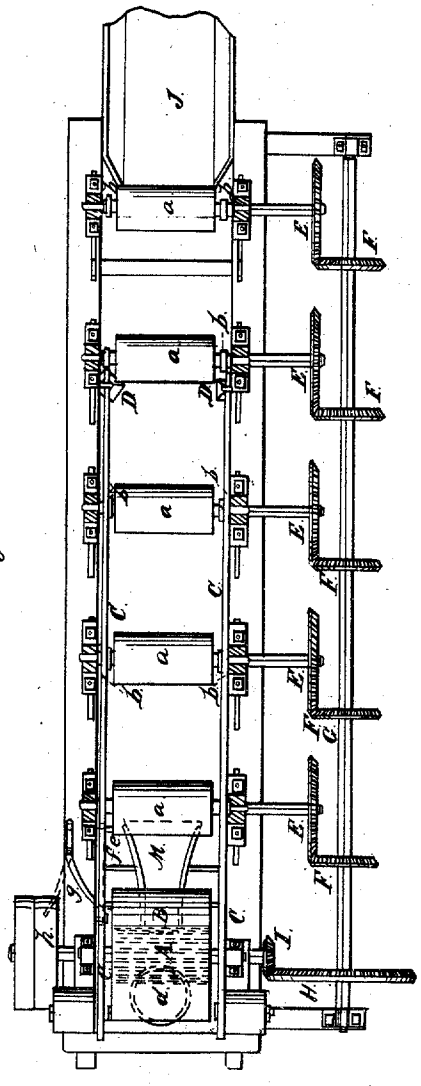


Fig. 2.

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Dec 8. 1814

John Francis Chaptal's
Letters Patent

The Schedule is hereto to these Letters Patent and making part of the same containing a description in the words of the said John Francis Chaptal himself of his machine for spinning Flax & Hemp &c.

This machine is a system composed of five wooden rollers, and one iron fluted cylinder in front of the machine. This cylinder is 3¼ inch diameter and receives pressure from a wooden roller of from 7 to 8 inch. in diameter covered with leather in order to give it more elasticity at each end of this upper roller is a lever 3 feet long at the end of which is fixed a weight of from 25 to 30 lbs. The five wooden rollers that are placed on the same principle one after the other at a distance of about 9 inches, are each pressed by another wooden roller on each side of which hangs a weight to give more pressure under the last to combine the fibres of flax. These weights are of about 7 lbs. The first wooden roller is 3¼ inch diameter, the 2d of 3 1/2. the 3d of 3, the 4th of 2 9/12, the 5th of 2 9/12 inches. This difference exists in order that each cylinder may have some draft on the next for the purpose of keeping the material always well extended.

These rollers turn by means of a bevel wheel fixed at the end of each, and receiving their motion from the wheels fixed on a shaft that receives its motion from a communication wheel turning with a pinion situated on a shaft of the iron fluted cylinder. The flax that passes between the 5 wooden rollers weighs 15 ounces taking an extent of 12 feet 6 inches. The iron fluted cylinder situated in front of the machine moves 15 times quicker than the 5 wooden rollers by which means the flax passing through the cylinder is 15 times thinner.

This operation is necessary because the flax entering the machine comes out of a box of 26 feet long placed behind the machine. This box is about 5 inches wide and of a different height to contain the mass of flax that weighs 15 ounces in an extent of 12 feet six inches. On each side of this box is a board of the

same length, on which is drawn out the whole length one ounce of flax which is turned in the box each time the iron fluted cylinder has turned 15 times, when the machine stops of itself by means of a catch fixed on the first wooden roller, which catch lifts a small lever that lets go a spring that corresponds with the moving shaft. Thus each time the machine stops an ounce of flax is put in motion by this means the box changes, containing the same quantity of material. It is clear that the flax spread out on the boards and which is turned in the box is very imperfect, and that the machine is rendering it 15 times thinner, evidentness and irregularities are 15 times more imperceptible, consequently the ribbon in weaving thereby produced is already 15 times more perfect, what makes this machine as well as the 2d & 3d preparation equally adapted for preparing Hemp is that the 3 wooden rollers can be at pleasure placed nearer or farther from each other by preparing hemp they are placed farther and for flax nearer to each other, and in such a manner that between the centre of the iron fluted cylinder, and the centre of the second wooden roller there is a distance equable the length of the material employed. The distance of the rollers are indifferent. The first wooden roller has no weights for those ounces it draws merely to prevent by its weight those fibres of flax that are shorter than the general- ity of the others. Between the iron fluted cylinder and the first wooden roller is a conductor of tin plate that serves, to prevent any fibres of the flax from escaping or passing alongside the large wooden roller, dressing on the iron fluted cylinder. The flax falling out of the cylinder falls in a box each which is removed and replaced by another when full.

Second preparation. The preparation of the same continues as the first, the manner of the different processes passing it are absolutely the same as the first. The only difference that for this second preparation there is no box placed behind but instead of that a number of thin laths containing each length of the first preparation. The number depends on the desired fineness of the yarn also on the qual

2. of the Rove. The more Rove is put between the machine the bigger will be the webbing coming out of it. In this machine a double set of rollers is employed that is to say there are two rollers or cylinders on the same shaft between the first there is one. All the work is effected by the same. The use of this second preparation is to improve the defects the first preparation has left.
The webbing coming out of this preparation is 18 times more perfect than that coming out of the first.
Third Preparation. This preparation is equal in combination to the 2d except that on each end of the iron fluted cylinder there is a spindle and steel on which the material coming out of the cylinder twists itself so that it can be placed under on the spinning frame. These two spindles turn by means of drums fixed on the iron shaft in the middle of the frame and these drums are driven by means of a pulley situate on the shaft of the iron fluted cylinders for spinning viz. 1. 2. 3 & 4. The least required to turn on them is 2 inches or 6 turns to a foot. This third preparation is likewise supplied by a number of tubes containing webbings coming out of the 2d preparation. The use of this 3d preparation is not only to give the material or last perfection but it is also necessary to twist the webbing
Spinning Machine. This machine has spindles on each end on the left hand machine are placed the spools with the prepared twist from the third preparation, each twist passes between an iron cylinder of one inch and a quarter roller of 1 or 1¼ inches thick situated under said spools and proceeds on reels whereby means of a hook drawn by a spring from these the twist passes and proceeds between two other wooden rollers, having no other pressure on each other than the proper weight of the superior roller. These two rollers serve merely to guide the twist and not to draw it. A small iron cylinder which is placed between these rollers and over the iron cylinder with superior rollers of two inches diameter on which passes a woodden roller that serves to stretch the mat-

local steel cones out of the iron cones. This process of separation is effected by means of a hook drawn by a strong friend across the grain. From these copper rollers the yarn goes on the spindles situated below them and that twist it is given.

The wooden rollers delivering above the condensers move a little quicker than the copper iron cylinders in order to keep the thread always extended. The iron cylinder with copper rollers delivers thirty times quicker than the iron copper cylinder, by which means the yarn gets 30 times finer than the sliver placed on the machine. By this means if there may get any irregularity in the preparation it would be found 30 times more imperceptible in the yarn and 30 times more perfect. Under the cylinder with copper rollers is a box containing water. The copper rollers dipping in this water get wetted and turning wet the yarn also. To obtain the different numbers of yarn the preparation twist must be made coarser or finer, to which endeavour the same purpose is to give to the cylinder with copper rollers more or less quickness in the iron copper cylinder. (Disposition of the wheels.) At the end of the machine is a shaft bearing a pulley on which the moving strap; at the other end is a pinion of 30 teeth that turns each row of cylinders with copper rollers which each of them have at their end a wheel of 100 teeth. as these wheels of 100 teeth are to be turned from the pinion of 30 teeth to catch in one another it is necessary to place between the pinion and the wheel of 100 teeth a communication wheel of which the number of teeth is indifferent, but one of 100 teeth is convenient to fill the space. (At the opposite end there are two wheels instead of one in order that the cylinder situated on this side may turn the same way with the opposite cylinder. By this means the cylinders with copper rollers receive their motion. At the end of the machine opposite to the last mentioned wheels and on the shaft of the last cylinder with copper rollers is a pinion of twenty teeth (this pinion of 20 teeth serves to give 30 threads) moving with a communication wheel of 60 teeth on this wheel of 60 teeth, fixed another pinion of 30 teeth moving with a great communication wheel of 232 teeth

(The diameter of this wheel is made first and cast for the sheet resting between
cylinder with copper rollers and the upper iron cylinder a wheel of 252 teeth
is best adapted) The wheel of 252 [illegible] a wheel of 100 teeth fixed on
the upper iron cylinder and situated on the other side of the machine opposite
to that where the moving pinion of 22 teeth is fixed which wheel of 1
teeth turns the upper iron cylinder. The same communicates to wheel
of 252 teeth turning the upper iron cylinder on the other side by means
of a communication wheel of 36 teeth placed between the wheel of 2
teeth and the wheel of 100 teeth fixed on the upper iron cylinder.

It will be hereby observed that on one side of the wheel of 252 teeth
and immediately with the wheel of 100 teeth and that on the upper
side there is a communication wheel. This in order to give to the lo
upper iron cylinders similar motion — The heart that makes the
wood board reservoir or lower receives its motion from the upper iron
cylinder situated on the side of the machine) Whereon is fixed the fee
moving shaft. The spindles move by way of 3 drums, that have their
motion from a pulley situated on a vertical shaft which is perpendi
cularly fixed under the feed moving shaft.

This last shaft has a bevel wheel of 150 teeth moving another bevel
wheel of 50 teeth situated on the vertical shaft which bears the pu
that moves the drums according to the twist it is intended to give to the
yarn. One of these last bevel wheels must be changed in order to g
more or less quickness to the spindles. The machine contains 6
Spindles, 30 on each side

This machine can either spin flax or hemp by means of placi
the upper iron cylinder at a greater or less distance from the cylinder
with copper rollers, which is done by moving the collars of the upper
iron cylinder higher or lower. These collars running in a groove on eac
on each of the bearings of the upper part of the machine.

Witnesses
Jno. Gf Thorn
Ogden Edwards

J. H. Chapman

Drawing Made

(2867 words)