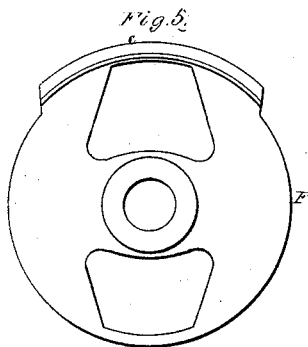
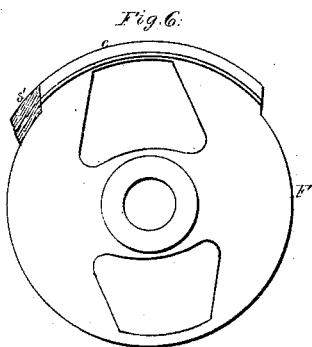
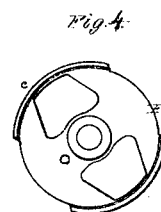
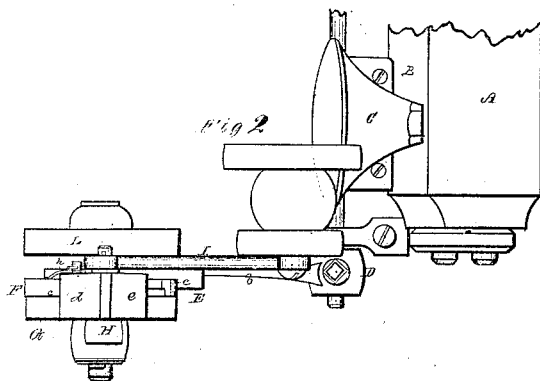
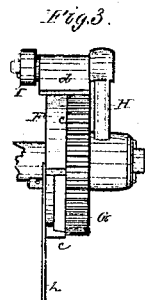
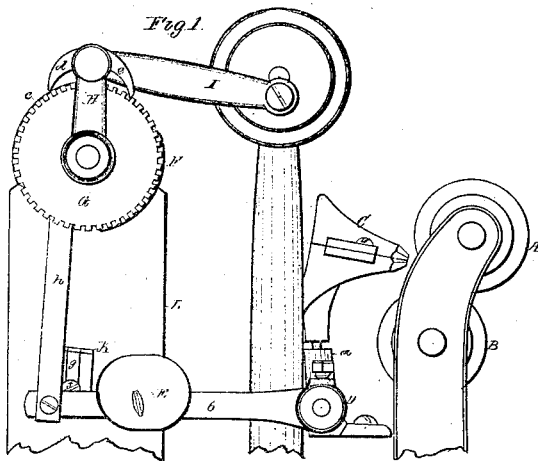


G. Draper,
Drawing Frame.

No. 113,752.

Patented Apr. 18. 1871.



Witnesses.

S. N. Piper

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by his attorney

R. U. Hardy

United States Patent Office.

GEORGE DRAPER, OF HOPEDALE, MASSACHUSETTS.

Letters Patent No. 113,752, dated April 18, 1871.

IMPROVEMENT IN DRAWING-FRAMES.

The Schedule referred to in these Letters Patent and making part of the same.

To all persons to whom these presents may come:

Be it known that I, GEORGE DRAPER, of Hopedale, of the county of Worcester and State of Massachusetts, have made a new and useful invention having reference to what are termed "Drawing-Regulators" for Spinning Machinery; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawing, of which—

Figure 1 is a side elevation of certain well-known parts of a drawing-regulator with my additions thereto.

Figure 2 is a top view of the same.

Figure 3 is an edge view of the flanged disk or rocker-plate, and the contiguous parts with which it operates.

Figure 4 is a side elevation of such rocker-plate.

Figure 5 shows the rocker-plate with its saddle as ordinarily constructed.

Figure 6 is a representation of such with the elongation or addition to the length of the saddle *c*, as made in carrying out my invention, such addition being on one side only of the medial line of the original "rocker-plate," and being represented (as shaded with black lines) at *s'*.

The object of the invention is the production of a sliver of even thickness, thereby insuring a thread of even diameter when spun from such sliver, a result rarely attainable by ordinary "draft-regulators," particularly in that well known as the "Wylly's draft-regulator," which was patented on January 28, 1851, the patent having been reissued on July 21, 1864, and subsequently extended for a term of seven years beyond the original term of fourteen years.

In most if not all well-known drawing-regulators heretofore in use the trumpet has been subjected to the action of a weight, or its equivalent, operating against the pressure or draft of the sliver upon the trumpet, and with the same or nearly the same force whether the trumpet be pressed to its extreme of forward motion, or, in consequence of the sliver being of not sufficient thickness, being allowed to fall back to its other extreme of motion or to any position between the two.

It must be borne in mind that the distance of vibration of a trumpet of a draft-regulator is confined to about the length of the staple of the cotton or fibrous material, because there has to be such a degree of condensation of the sliver in the trumpet as would cause the sliver to pull apart were the mouth of the trumpet at a distance from the bite of the calendar-rollers greater than the length of the staple. In most cases the extent of vibration of the trumpet, when in action on a cotton sliver, will not exceed three-fourths of an inch.

Though in Wylly's regulator the trumpet turns on a pivot and is mounted on a vibratory arm, such an application of the trumpet fails in practice to overcome the difficulty which it is the purpose of my invention to prevent. Although Wylly's draft-regulator has gone into very extensive use, his mode of supporting and operating the trumpet has mostly been abandoned and others substituted.

With the vibratory trumpet now in general use the weight operates with nearly equal force in whatever position the trumpet may be within its limit of motion, the sliver, when of the right size or thickness, causing the trumpet to assume its medial position, the mechanism for changing the relative speed of the draft-rollers being at rest.

When the sliver in the trumpet is too large or thick it will overcome the resistance of the weight and press the trumpet forward, and set at work the evener or mechanism, so as to increase the draft until the sliver may be properly reduced.

So, when the sliver in the trumpet may be too small or not of sufficient thickness the weight will effect a retraction of the trumpet and set the mechanism at work to lessen the draft, so as to increase the size or thickness of the sliver.

Such is the theoretical action of the parts; but in practice, when the size of the sliver is increased owing to the condensed condition of the cotton in the trumpet, the latter will be pressed or drawn forward or toward the calendar-rollers, often with great power, and there kept with the mechanism to change the draft of the sliver operating to its full capacity, until the sliver becomes too small, in which case the effect will be to let the trumpet fall back past the medial position, the result being an uneven sliver.

When the sliver is too light the power to change the trumpet is much less in proportion; consequently, when at its rear extreme position it (the trumpet) will not stay too long, as it will when at its forward extreme; for, as soon as the trumpet may become full it will move forward with the sliver.

Greater trouble comes from making the sliver lighter rather than heavier with respect to the standard size; for, if heavier, there is a waste of stock, which may result in a slight imperfection not detrimental to the strength of the fabric; but, in case the sliver is not thick enough, the thread or yarn made from it will be too fine, and, as a consequence, its strength will be proportionally impaired.

Having less fiber, the thread or yarn will require more twist to impart to it the necessary strength; therefore a sliver, when made too small, will produce an imperfection in the woven fabric made of it.

In the common draft-regulators, when the trumpet

is at its medial position the flanged rocker-plate will have attained its medial position, so as to prevent the reciprocating pawls, while in oscillation, from actuating their gear so as to vary the speed of the draft-rollers. From this it will be seen that an equal departure either way of the trumpet from such medial position will cause a like degree of movement of the rocker-plate.

In the drawing—

A B are the calendar-rollers.

C, the trumpet.

D, the lever, on whose shorter arm, *a*, the trumpet is supported.

E is the adjustable weight of the longer arm *b* of the said lever.

F is the rocker-plate, provided with the saddle or ark-flange *c*, and joined to the trumpet-lever by a connecting-rod, *h*.

G is the gear.

H, the vibratory arm carrying the two pawls, *d e*.

I is the connecting-rod for imparting to the pawl-arm H a reciprocating vibratory motion, such pawls, when out of action upon the gear, resting on the saddle or flange *c*.

K is an adjustable stop fixed to the upright or part L of the frame of the machine, such stop being to limit the upward motion of the longer arm of the trumpet-lever and thereby determine the extent of advance of the trumpet.

The stop is held to the plane or part L by a screw, *f*, which goes through a slot, *g*, in the stop, and screws into the part L, the head of the screw serving to clamp the stop in position.

In carrying out my invention I elongate the saddle of the rocker-plate at one end beyond its normal length. By such "normal length" I mean that areal length which it should have to cause the pawls while in vibration to effect no motion of the gear when the trumpet is at its medial position.

This elongation, shown at *s*, and the arrangement of it, becomes an additional mechanism to effect a new result. Whereas in other draft-regulators the areal length of the saddle of the rocker-plate is equal practically to the length of the sweep of the pawls, with

my said improvement the areal length of the saddle is greater than the sweep of the pawls, the difference in length being the portion *s*, and being arranged on one side only of that part of the saddle which is directly underneath the common axis of the pivot of the pawls when they are at the position they assume when the trumpet is at its medial position.

From this it will be seen that when the trumpet is at its medial position there will be no movement of the gear G; but when the trumpet advances beyond its medial position a small movement of the gear will follow in comparison to what may result when the trumpet may fall back from its medial position.

The adjustable stop K is to enable me to arrest the advance of the trumpet relatively to the bite of the calendar-rollers.

Thus, in carrying out my invention, I have combined with the vibratory trumpet the rocker-plate and its gear, the saddle elongation *s*, which is a mechanism that, when the trumpet is in its most advanced position, will cause a much smaller arc of gear-teeth to be presented to the action of one pawl to what will result with respect to the other pawl when the trumpet may fall back to its rearmost position. Consequently, by means of this addition of the elongation *s*, or by what would be an equivalent therefor, I am enabled to effect desirable new and useful results as respects the draft or the operation of the draft-rollers.

I claim—

1. In combination with the vibratory trumpet C, the vibratory pawls *d e*, and their gear G of a draft-regulator, the rocker-plate F as made with the elongation *s* of its saddle or flange *c*, arranged to operate substantially as described.

2. The combination of the adjustable stop K with the vibratory trumpet, the vibratory pawls and their gear, and the rocker-plate F as made with the elongation *s* of its saddle, arranged to operate substantially as described.

GEORGE DRAPER.

Witnesses:

R. H. EDDY,
J. R. SNOW.