P. J. HINDS & E. S. FERRIS.

DOFFING WIRE.

APPLICATION FILED MAY 21, 1912.

1,067,815. Patented July 22, 1913.

Fig. 1.

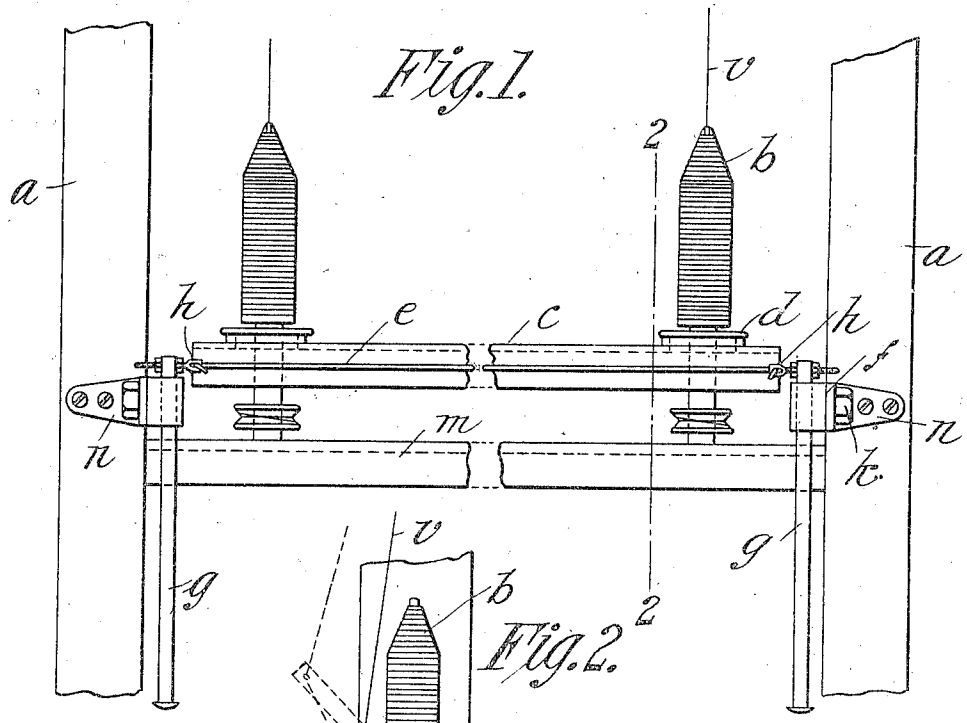
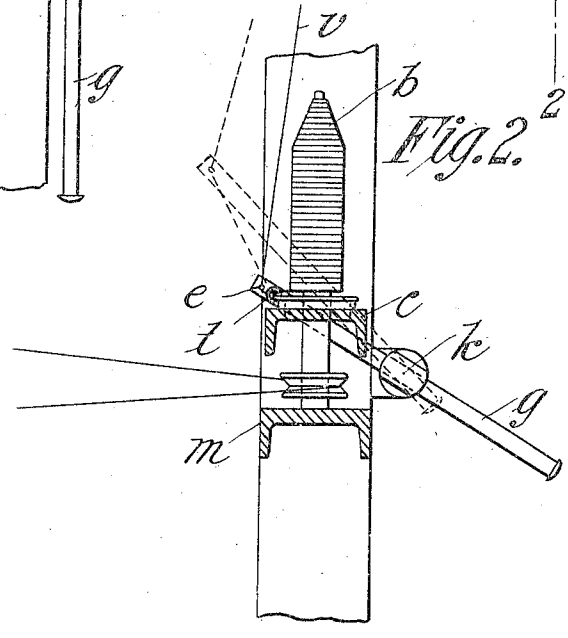


Fig. 2.



WITNESSES:

H. L. Sprague

R. M. Mowry.

INVENTORS,

Peter J. Hinds and

Edgar S. Ferris

BY

Chapin & Co

ATTORNEY.

UNITED STATES PATENT OFFICE.

PETER J. HINDS AND EDGAR S. FERRIS, OF HOLYOKE, MASSACHUSETTS.

DOFFING-WIRE.

1,067,815. Specification of Letters Patent. Patented July 22, 1913.

Application filed May 21, 1912. Serial No. 698,714.

To all whom it may concern:

Be it known that we, PETER J. HINDS and EDGAR S. FERRIS, both citizens of the United States of America, residing at Holyoke, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Doffing-Wires, of which the following is a specification.

This invention is designed to facilitate the operation of doffing the filled bobbins on a spinning frame and replacing them with empty bobbins, and is an improvement upon the doffing wire of our prior Patent No. 1,000,909, issued August 15, 1911.

Before removing the filled bobbins or cops, it is necessary to swing the thread leading to each spindle out of the way of the operator, and prior to the invention shown in our said patent such movement of the threads was done by hand. By the means shown in our patent, however, an operator at each end of the spinning frame raised a wheeled carriage, mounted on a track secured to the front of the upright supports at each end of the frame, practically as high as the top of the bobbins, then swung arms pivoted to the said carriages, over the bobbins, and the doffing wire carried by said arms engaged all the threads at once and swung them away from their respective spindles as the arms were moved back of the spindles and the carriages dropped to their lowered position.

By our present improvement, a much simpler and more economical construction of doffing device is provided, and while the prior doffing wire required that the operator employ both hands in the two movements of first raising the carriage and then swinging the arm carrying the wire over the spindles in order to operate the device, our present invention enables this operation to be accomplished by a single movement and by one hand of the operator.

To this end, an important feature of the invention comprises means whereby an arm or carrier for the doffing wire is pivotally secured to a single fixed point on the upright support at the end of a spinning frame and is arranged to be vertically movable relatively to such support; said arm being both vertically and pivotally movable.

A very important advantage of the present improvement is that by reason of the simple and light construction of the carriers for the doffing device, practically all danger of breaking the threads leading to each spindle is eliminated, whereas in the device of our prior patent the extra weight of the traveling wheeled carriages was apt to break the threads when the carriages were dropped by a careless operative and the doffing wire was in engagement with the threads.

Further objects of the invention are to provide a doffing device which may be easily and quickly attached to spinning frames, which cannot easily get out of order, and which will have capacity for greatly increased speed of operation.

Referring to the drawings, wherein a preferred embodiment of the invention is illustrated, Figure 1 is a front view of a portion of a spinning frame with the doffing device mounted on each end support; and Fig. 2 is a view, partly in cross section, on the line 2—2 of Fig. 1, looking toward the right.

The usual spinning-frame construction comprises upright supports *a*, *a* at either end, a bolster *m* on which the spindles *b* are mounted, and a vertically movable ring-rail *c*, all being arranged in the usual and well known manner. Our doffing device is attached to the spinning frame. On each end support *a* is secured, by suitable screws, a right-angled member *n* approximately at the height of the ring-rail *c* when said ring-rail is in its lowered position. A block *f* is pivotally secured to the upstanding portion of the member *n* by means of a bolt *k*, said block *f* being suitably bored to receive a sliding carriage or arm *g*. This arm *g* has at its upper portion a turnbuckle *h* threaded therethrough, and at its lower portion a head or flange to limit its upward movement. The turnbuckle *h* has an eye in which the end portion of the doffing wire *e* is secured. Duplicate sliding arms or carriages *g* are similarly arranged to each support, and the wire *e* is adjustably secured thereto, as will be readily understood on reference to Fig. 1, the turnbuckle serving to hold the wire taut.

During the spinning operation, the doffing device is in its lowered position entirely out of the way, as is illustrated in Fig. 1, but as soon as the bobbins *b* are

filled, the spinning is stopped, with the ring-rail c in its lowered position. Operators at each end of the spinning frame manually grasp and lift the respective arms g, sliding them upwardly in the blocks f until the wire e may be swung over the tops of the spindles b and against the threads v leading to the rings l, as shown in dotted lines in Fig. 2. The rods g are then released and will slide downwardly by their own weight, or may be pulled down by the operators, until in the position shown in full lines in Fig. 2. The filled bobbins b may then be removed and empty ones replaced, when the sliding rods g are operated in a reverse manner to swing the doffing wire e from the position shown in Fig. 2 back to that as shown in Fig. 1, when the spinning may be resumed.

It will be readily seen that we have provided a doffing device of the utmost simplicity of construction and one which may be operated with great ease and facility, the operator lifting and swinging a rod g to position the doffing wire e in either operative or inoperative position by a single movement and with only one hand. Also the light weight of the entire movable portion of the doffing device renders damage to or breakage of the threads unlikely. Such light weight also minimizes the labor of doffing while permitting increased speed in operation. In the device of our prior patent it was necessary to use a track on which the wheeled carriage could be raised and lowered, and if said track was bent, either by accident or by the tension of the doffing wire, the operation of the carriage was difficult, whereas in our present improvement, by affixing the block f by means of a strong pivotal connection at a fixed point on the upright supports, any likelihood of derangement of the moving members or difficulty in their operation is eliminated.

Another advantage of considerable practical importance in the device of our present invention is that it may be applied to a spinning frame with great ease and rapidity, necessitating merely the affixing of the members n to the front of the frame, whereas the device of our prior patent required the affixing, adjustment and truing of parallel tracks on which the wheeled carriages traveled.

Having described our invention, what we claim as new and desire to secure by Letters Patent is:

1. In combination with the spindles of a spinning frame, a doffing device comprising a wire supported by two carriers, each carrier being pivotally mounted on an end support of the frame at a fixed point and having provision for vertical sliding movement relatively with said support, whereby the wire can be moved from a position in front of the spindles over the tops of the spindles to engage the threads leading thereto by a simultaneous vertical and pivotal movement.

2. In combination with the spindles of a spinning frame, a doffing device comprising two arms pivotally mounted at fixed points on the frame, said arms being constructed and arranged for sliding movement relatively with said pivotal connection, a wire carried by said arms, and adjustable means to connect an end of the wire to each arm.

3. In combination with the spindles of a spinning frame, a doffing device, comprising a wire carried by means mounted on the spinning frame at a fixed point, which means have provision for simultaneous vertical and pivotal movement relatively with said frame, to cause said wire to engage the thread leading to each spindle and to hold said threads away from said spindles.

4. In combination with the spindles of a spinning frame, two separated fixed supports, a holding device pivoted to each support, a rod held by and movable relatively to each holding device, a wire subtended between said rods whereby said rods may be moved to position said wire in front of, or behind the spindles, and in either position to move the wire lengthwise of the spindles.

5. In combination with the spindles of a spinning frame, two separated supports, a holding device pivoted to each support, a rod held by and movable longitudinally with respect to each holding device, a wire subtended between said rods whereby said rods may be moved to position said wire in front of, or behind the spindles, and in either position to move the wire lengthwise of the spindles.

PETER J. HINDS.
EDGAR S. FERRIS.

Witnesses:
STANLEY MERCURE,
JOSEPH HEBERT.