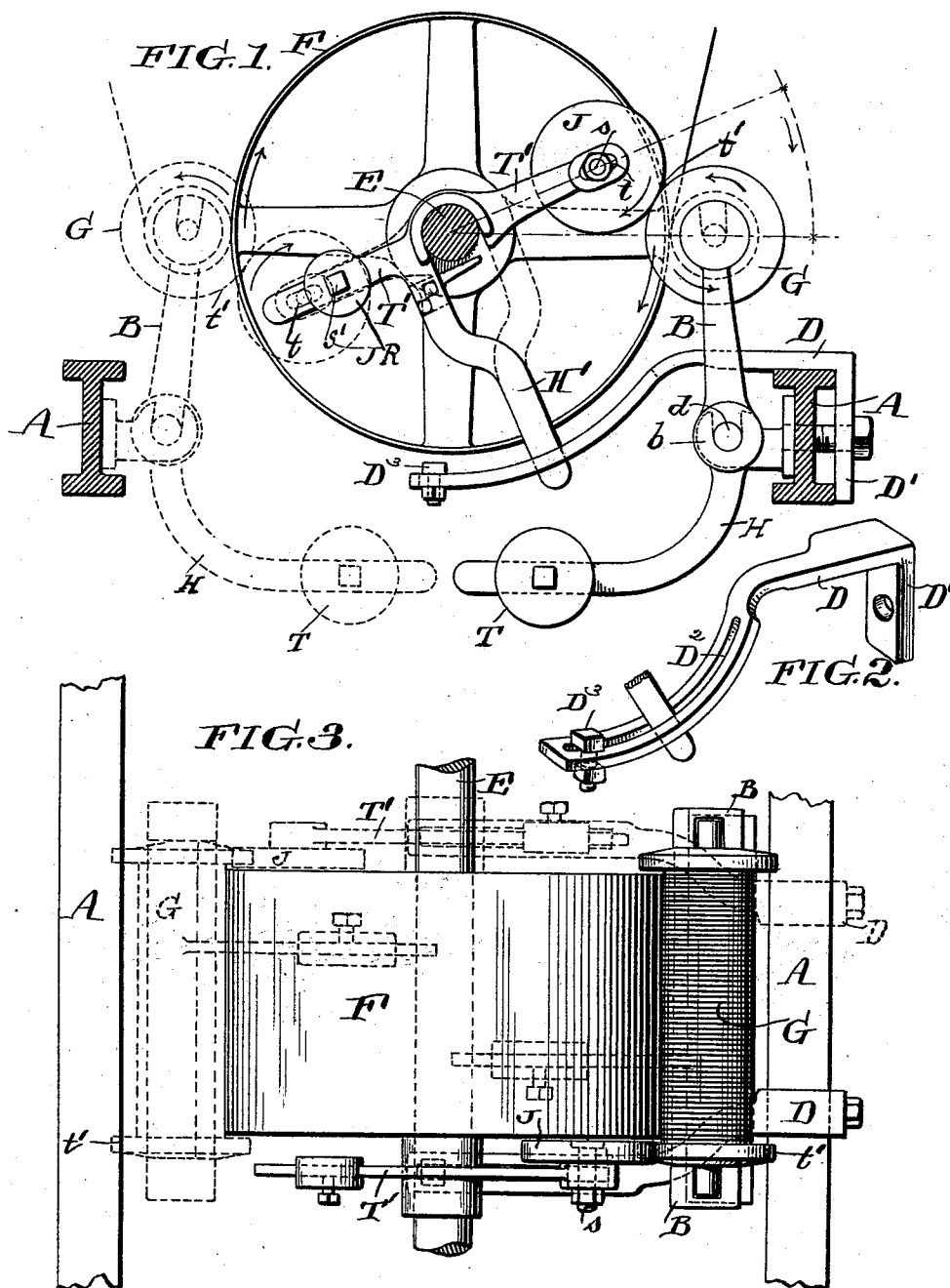


(No Model.)

O. LEVER & W. S. GRUNDY.
STOP MECHANISM FOR SPOOLING MACHINES.

No. 517,615.

Patented Apr. 3, 1894.



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UNITED STATES PATENT OFFICE.

OSWALD LEVER AND WILLIAM SMITH GRUNDY, OF PHILADELPHIA,
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STOP MECHANISM FOR SPOOLING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 517,615, dated April 3, 1894.

Application filed November 18, 1892. Serial No. 452,368. (No model.)

To all whom it may concern:

Be it known that we, OSWALD LEVER and WILLIAM SMITH GRUNDY, citizens of the United States, and residents of the city of Philadelphia, State of Pennsylvania, have jointly invented certain new and useful Improvements in Stop Mechanism for Spooling-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

Our invention relates to stop mechanism for spooling machines, and has for its object to throw the winding mechanism out of action when the spool is filled.

To that end it consists of the combination with the usual spooling frame and the actuating devices mounted thereon and supporting the spool, of a device hereinafter described, mounted upon the shaft which drives the friction drum and which operates, when and as the spools are completely filled, to separate them from contact with the said friction drum.

In the accompanying drawings illustrating our invention, Figure 1 is an end view, partly in section, of the frame, the spool-supporting devices, the friction drum, its shaft, the stop-mechanism hung upon said shaft, and the guide-arm therefor, mounted upon the frame of the machine. Fig. 2 is a detached view of the guide arm for the stop-mechanism. Fig. 3 is a plan view of the complete device shown in Fig. 1.

In the practical application of our invention, which relates exclusively to the stopping mechanism, we employ the usual spooling frame, well known in the art; the supporting frame of which is designated at A, the spool-supporting arm B mounted thereon in a bearing *b* and having a weighted arm H extending below the bearing *b*, the drum shaft E carrying the friction drum F, whereby the spool G is rotated, by frictional contact with the material being wound thereon, in the usual manner. These spooling frames are usually made double, as shown in the drawings; that is to say, supporting frames A are arranged in parallel rows on opposite sides of the frame, each side containing a spool supporting arm B and weighted arm H, for each single drum

F mounted on the shaft E which is longitudinally central between them. To the device as thus shown and described, we have added and combined, mechanism to throw the spools out of contact with the friction drum F, when and as the said spools are completely filled, and so stop the operation of the winding mechanism. These devices consist of an arm D, shown in detached perspective view in Fig. 2, of such shape at its rear extremity as to enable it to be conveniently secured to the frame A, as by the slotted piece D'; and at its forward end it is curved and slotted at D² for the greater part of its length. The arm H' of a collar which hangs on the drum shaft E, plays loosely in this slot D² and as it moves in an arc of a circle the slotted end D² of the arm D must be made of the requisite curvature so that the slot shall act as a guide. A set screw D³ in the slot D² limits the movement of the arm H'. The drum shaft E carries the friction drum F. The arms B and H are supported centrally by the pin *d* in an open bearing *b* projecting inwardly from the frame A. The end of the arm H is curved inwardly and is supplied with a weight T, adjustable longitudinally thereon, and which operates to keep the spool G mounted on the arm B in contact with the friction drum F and with the roll J. By reference to Fig. 3 it will be seen that the periphery of the drum E bears against the material being wound on the spool, while the periphery of the roll J bears against the flange or rim *t'* of the spool. The arm H' is made wide at its upper end and recessed thereat forming a collar, and hangs loosely on the shaft E and against the face of the drum F. It is cut away at one side between the collar and its lower end, so as to form a hook shape to enable it to be hung on the shaft. Said arm H' has side arms T' T', slotted at *t* and carrying a roll J on one arm and an adjustable weight R on the other arm, both longitudinally adjustable in the slots by means of set screws *ss'*. The distance between the center of the shaft E and the peripheral edge of the roll J is very slightly greater than half the diameter of the drum F. As before remarked, these spooling frames are usually made double, for economy of power and space; hence the drawings show such a double frame,

one side in black lines and the other side in dotted lines; but each is separate and distinct from the other, except in so far as both are driven by a common friction drum F placed longitudinally central between them. When so arranged, two of our stopping devices are required for each drum, that is, one for each spool operated by such common drum and they are arranged one on each face of the drum, as shown in Figs. 1 and 3, and hence as the pair of opposite spools G G move in contrary directions to each other when driven by the same common drum, the two arms H' with their arms T' T' are hung on the shaft on opposite faces of the drum, exactly the reverse of each other, that is, so that the roll J of one will be normally above the spool B on one side of the drum, and the roll J of the other arm will be below the spool G on the other side of the drum; as indicated by the dotted lines in Fig. 1.

The operation of the device is as follows: The spool G is rotated by means of frictional contact of the material being wound thereon with the periphery of the drum F carried on the rotating shaft E, and is held against said drum constantly by the action of the weighted arm H. The tendency of the arm H' which may be nicely balanced by the adjustable weight on one of its arms T', is to assume a perpendicular position, which is gradually attained as the spool is filled by contact with the friction drum F, until finally when said spool is sufficiently full, the said arm H' will be perfectly perpendicular, and its roll J then bearing against the rim or flange J' of the spool will separate it and the material wound thereon from contact with the periphery of the drum F and thereby the rotation of the spool and the winding of material thereon will instantly cease. If the spooling frame is made double, as shown, of course the like stop mechanism on the opposite face of the drum, as indicated by the dotted lines in Fig. 1, will operate in the same manner and be simultaneous therewith in its said action, when and as the said rolls shall by gravity be brought into the same horizontal plane.

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

1. In a spooling frame, the combination with a weighted swinging arm upon which a spool is supported, and a rotating friction drum for driving the spool, of an arm H' provided with a collar resting loosely on the shaft of said drum and with projecting extension arms T'

T', one of them carrying an adjustable balance weight and the other of them a roll J, the latter arranged to bear against the flange or rim of the spool, and operating to separate the spool from contact with the drum when said extension arms T' T' shall by gravity assume a horizontal position; substantially as described.

2. In a spooling frame, the combination with a weighted swinging arm upon which a spool is supported, and a rotating friction drum for driving the spool, and with the main supporting frame A of a longitudinally slotted curved guide arm D, an arm H' having its lower end guided in said slot, its upper end provided with a collar adapted to hang loosely on said drum shaft and with extension arms T' T', one of them carrying an adjustable balance weight and the other of them a roll J, the latter arranged to bear against the flange or rim of the spool and operating to separate the spool from contact with the drum when by gravity the said arm H' shall assume a perpendicular position; substantially as described.

3. In a double spooling machine, having opposite parallel frames A A, a longitudinally central shaft E with drum F mounted thereon, weighted supporting arms B, H, mounted on said frames and carrying spools G the combination therewith of stop mechanism for each spool consisting of a pair of longitudinally slotted curved guide arms D supported toward each other from the frames A A, a pair of arms H' provided with a collar hanging loosely on the drum shaft, on opposite faces of the drum and in opposite directions to each other, said arms H' each having extension arms T' T', one provided with an adjustable balance weight and the other with a roll J, the latter adapted to contact with the flange or rim of the spool; and separate it from contact with the drum when and as the said balanced friction rolls shall by the filling of the spool be brought by gravity into the same horizontal plane; said parts being combined and arranged and operating substantially as and for the purpose set forth.

In testimony whereof we have hereunto affixed our signatures this 1st day of November, A. D. 1892.

OSWALD LEVER.
WILLIAM SMITH GRUNDY.

Witnesses:

H. T. FENTON,
C. W. BECK.