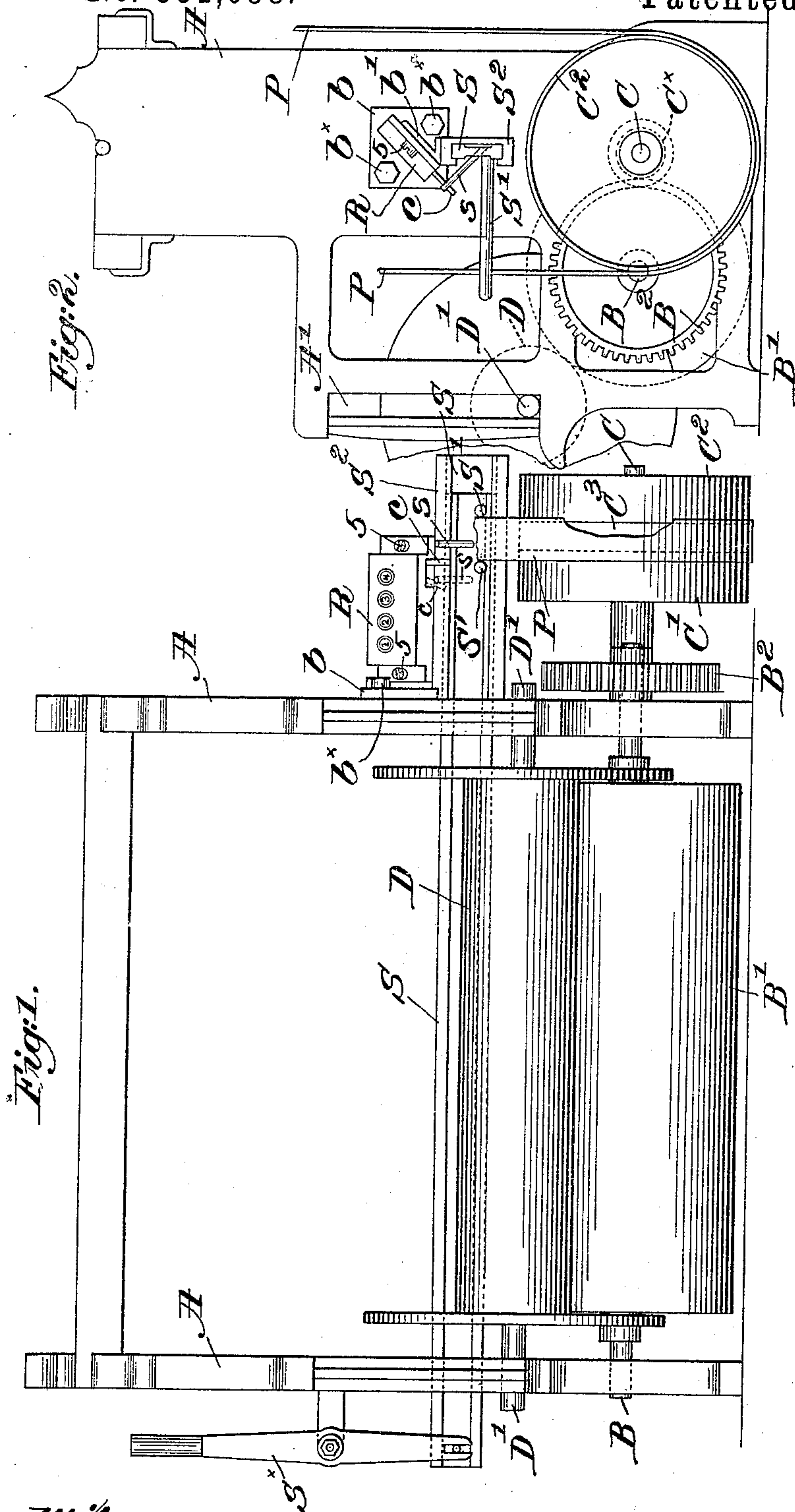


(No Model.)

H. F. STRAW.
SELF REGISTERING STOP MOTION MECHANISM.

No. 551,698.

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Witnesses:

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UNITED STATES PATENT OFFICE.

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SELF-REGISTERING STOP-MOTION MECHANISM.

SPECIFICATION forming part of Letters Patent No. 551,698, dated December 17, 1895.

Application filed March 11, 1895. Serial No. 541,213. (No model.)

To all whom it may concern:

Be it known that I, HERMAN F. STRAW, of Manchester, county of Hillsborough, State of New Hampshire, have invented an Improve-
5 ment in Self-Registering Stop-Motion Mechanism, of which the following description, in connection with the accompanying drawings, is a specification, like letters and numerals on the drawings representing like parts.

10 Various classes of apparatus are provided with stop-motion devices, operated automatically or by an attendant, to stop the apparatus, but after such stoppage the machine is almost invariably started again by the attend-
15 ant, and the number of times the machine is stopped or started at full speed in the course of the day will, in many instances, give a very fair and accurate account of the quality of work performed by that particular piece of
20 machinery, or of the character of the work performed in prior treatment.

I have devised means for indicating and registering automatically the number of times an apparatus is started at full speed by pro-
25 viding a suitable registering device which is actuated each time that the apparatus is so started, and I have herein shown my invention as applied to a warper.

30 In the operation of warping, stoppages are made from time to time to correct faults or breakage of the yarn, and the proper performance of the warper is very largely controlled by the prior treatment of the warps in the operations of carding, spinning, &c.
35 When these operations are not properly carried out, the threads will break more frequently in the warping, necessitating stoppages of the machine, and it will be obvious that the action of the warper is thus an index
40 or telltale on the preceding steps in the treatment of the yarns.

Warper are usually provided with tight and loose pulleys and a slow-speed pulley, the latter being used to start the machine slowly
45 or to run it at low speed for a short time in order that the attendant may conveniently repair breakages.

Inasmuch as the slow speed of the warper is not a proper indication of the work, I have
50 provided a register which will be preferably

operated only when the warper is started at full speed, and I have shown the operation of the register as controlled by the movement of the shipper mechanism into full-speed position.

55 Figure 1 in front elevation represents my invention as applied to a warper, a sufficient portion of the warper being shown to be understood. Fig. 2 is a right-hand elevation of the apparatus shown in Fig. 1; and Fig. 3 is
60 a face view, on a larger scale, of a convenient form of registering device.

The warper which I have chosen for illustration comprises end frames A, of suitable shape to form bearings for a shaft B, pro-
65 vided with a driving roll or drum B' and a gear B², in mesh with a pinion C^x (see dotted lines, Fig. 2) on a short shaft C, having thereon fast and loose pulleys C' and C² and
70 a slow-speed pulley C³.

The warp-roll D rests on the drum B', and its journals D' are vertically movable in slots or guideways A' in the main frame, the warp-
roll rising as the diameter of the mass of yarns wound thereon increases, all in well-known
75 manner.

The end frames A are slotted to form bearings for a shipper-bar S, movable longitudinally therethrough by means of a shipper-
80 lever S^x, and provided with a belt-fork S' to engage the power-transmitting belt P and move it from one to the other of the pulleys, a laterally-extended guide or support S² for the bar being secured to the frame at the belt
85 end.

Neither the warper nor the shipper mechanism herein shown forms any part of my invention, and either or both may be and are of any well-known or usual construction.

I have herein shown a stand b secured to the
90 end frame by suitable bolts b^x and provided with a laterally-extended arm b' having preferably an inclined face, as shown in Fig. 2, to which is secured by suitable screws 5 a registering device or counter R, of any suitable
95 construction.

As shown in Figs. 1 and 3 the face of the register has a series of openings therein, beneath each of which is located a disk, (shown in dotted lines, Fig. 3,) each disk provided with
100

the digits and zero in well-known manner, the complete rotation of one dial turning the next succeeding one through one step.

The usual spring-controlled actuator for the right-hand or units dial projects at *c* from the slotted bottom of the casing and is extended in the path of a pin or projection *s* on the shipper-bar *S*, the said pin being so located herein that it will engage and move the actuator *c* into dotted-line position, Fig. 1, when the belt *P* is moved onto the fast pulley *C'*, thereby moving the right-hand dial one step or unit.

When the belt is for any reason thrown off the fast pulley the actuator *c* returns to full-line position, ready to be again moved when the apparatus is started at full speed.

It will thus be seen that a complete register is kept of the number of times the apparatus has been started at full speed, and also that the belt *P* can be moved from the slow-speed to the loose pulley, and vice versa, any number of times without registering.

It is not necessary to show or describe in detail the registering mechanism, as the same is old and well known, and in lieu of the particular form herein shown any other suitable mechanism can be used.

By the term "stop-motion mechanism" I include hand belt-shipper operating mechanism or automatically-actuated means for moving the belt from one to the other pulley to effect a change in the operation of the machine.

While I have herein shown the shipper-bar itself as co-operating with the registering mechanism, my invention is not restricted thereto, as any part or member of a shipper or stop-motion mechanism having a fixed and definite movement when the apparatus is started at full speed or stopped may be utilized to co-operate with the register and cause it to operate.

My invention is not restricted to warpers, for it is obvious that it may be applied to other apparatus and used with equal advantage.

While the register is herein shown as stationary and its actuator operated by a movable part of the stop motion, it will be obvious that a reversal of this arrangement—viz.,

moving the register bodily by operation of the stop motion to operate the actuator by a fixed projection or finger—would fall within the spirit and scope of my invention.

I claim—

1. In a self registering stop-motion, a registering device, an actuator therefor, belt shipping mechanism, and a member thereof adapted to co-operate at times with the actuator, relative movement of said member and the actuator when the shipping mechanism is moved into full speed position operating the actuator, to thereby register the number of times such mechanism is moved into said position, substantially as described.

2. In a self-registering stop-motion, a belt shipping mechanism, a longitudinally movable part thereof being provided with a projection, a fixed registering device, and a normally inoperative actuator for said registering device adapted to be engaged by said projection when its support is moved, movement of the shipping mechanism into full speed position bringing the said projection and actuator into engagement to operate the latter and register such movement, substantially as described.

3. In a warping machine, shipper mechanism, a register, its actuator, and means to operate the actuator each time the said mechanism is moved into full speed position to thereby register the number of times such movement is made, substantially as described.

4. In a warping machine, belt shipping mechanism, a register, an actuator therefor, and an operating projection adapted at times to engage and move the actuator, movement of the shipper mechanism into full speed position causing operative engagement of said projection and actuator to thereby register the number of times such movement has been made, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HERMAN F. STRAW.

Witnesses:

JOHN C. EDWARD,
AUGUSTA E. DEAN.