(No Model.)

A. E. RHOADES.

SPOOLING MACHINE.

No. 550,897. Patented Dec. 3, 1895.

Fig: 1.

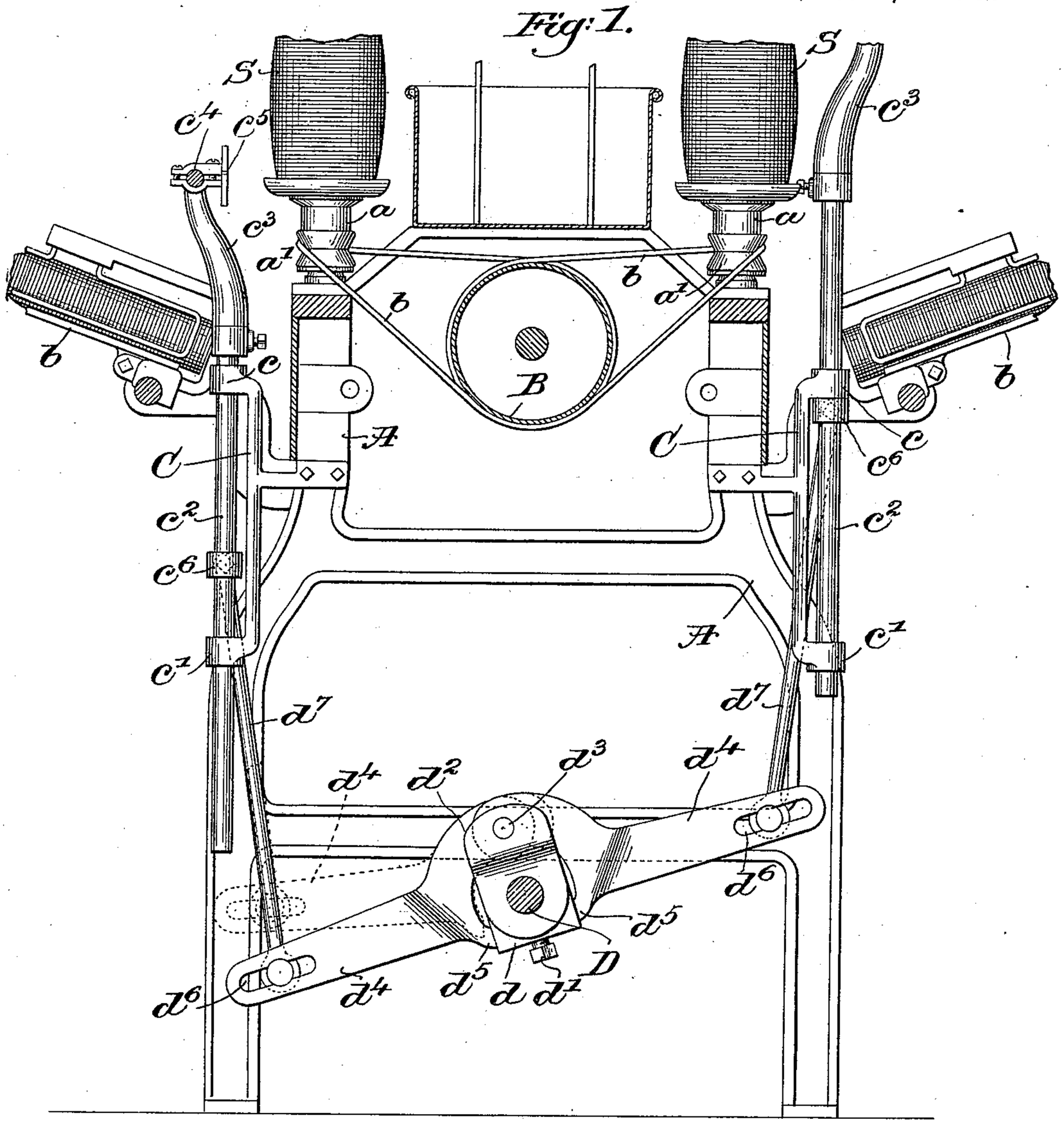

Fig: 2.

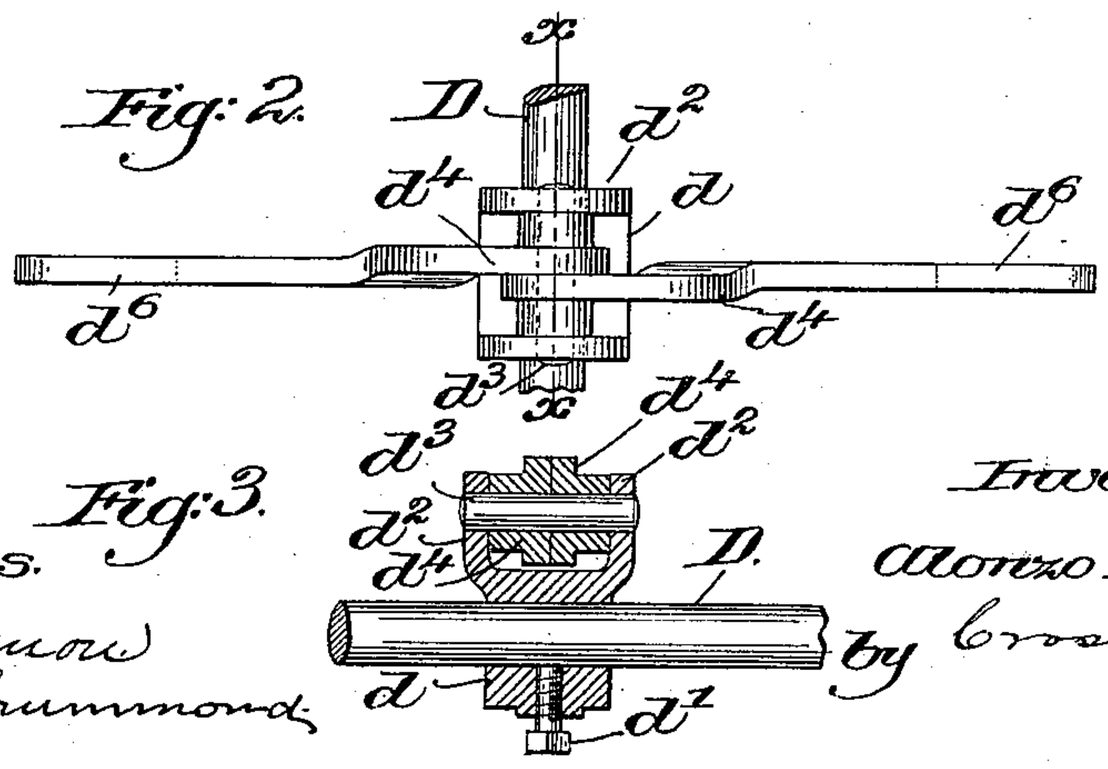

Fig: 3.

Witnesses.
A. C. Harrow
Thomas J. Drummond.

Inventor.
Alonzo E. Rhoades
by Crosby Gregory
Attys.

UNITED STATES PATENT OFFICE.

ALONZO E. RHOADES, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO THE HOPEDALE MACHINE COMPANY, OF SAME PLACE.

SPOOLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 550,897, dated December 3, 1895.

Application filed August 5, 1895. Serial No. 558,294. (No model.)

To all whom it may concern:

Be it known that I, ALONZO E. RHOADES, of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Spooling-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In spooling-machines vertically-movable guides are necessary to properly deliver the thread or yarn to and to traverse it on the spools, and these guides are usually reciprocated by means of a rock-shaft provided with rocker-arms positively connected to the guide-frames, it being understood that a series of guides are mounted in a frame to move in unison.

The operative or attendant has to handle a great many spools in the use of the machine, and it frequently happens that a spool will drop from the operative's hands or from the shelf on the machine on which it is deposited and it gets under one of the descending guide-frames.

As the descent of the frame has been heretofore positive in such spooling-machines, the interposition of a spool in its path has caused some part of the mechanism to be either bent or broken, with consequent delay and expense for repairs.

This invention has for its object the production of a spooling-machine wherein the guide-frames are so connected to their actuating mechanism that they are permitted to yield in the event of any interference with their downward movement, the frames being positively raised but descending properly by their own weight.

Accidental interference with the descent of a guide-frame is thus not injurious to the machine, and the removal of the obstruction instantly places the machine again in operative condition.

Figure 1, in transverse section, taken within one of the end frames, represents a spooling-machine with one form of my invention embodied therein. Fig. 2 is a top or plan view of a portion of the actuating rock-shaft with two of its connected rocker-arms; and Fig. 3 is a sectional view taken on the line $x\,x$, Fig. 2, the rock-shaft being shown in elevation.

The end frames A, of suitable shape to support the operative parts, the series of spool-receiving spindles or supports a, provided with whirls A′, the driving-drum B, connected with the spindle-whirls by suitable belts or bands b, and the bobbin-holders b' may be and are all of usual and well-known construction.

At the front and back of the frame are secured a series of brackets C, having bearings $c\,c'$ for vertically-movable guide-rods c^2, to the upper ends of which standards c^3 are secured, having mounted therein cross-bars c^4, to which are secured suitable yarn or thread guides c^5, each adjacent one of the series of spools S to deliver the yarn or thread thereto and to traverse it thereupon.

A rock-shaft D is suitably supported in bearings in the main frame and rocked in any suitable or usual manner, (not shown,) said rock-shaft having connected thereto rocker-arms by a species of "rule-joint," meaning thereby a joint which permits angular motion of the rocker-arm in one direction relative to the rock-shaft, motion in the opposite direction being prevented by a suitable abutment. With such a joint partial rotation of the rock-shaft in one direction will positively move the rocker-arm in unison; but when the rock-shaft turns in the opposite direction the rocker-arm may be held to turn on its joint without interfering with the continued movement of the rock-shaft.

In this embodiment of my invention I have secured to the rock-shaft D collars d, preferably equal in number to the number of guide-rods c^2 in each guide-frame at the front and back of the machine, a set-screw d' preventing movement of the collar on the rock-shaft. Each collar d has upturned ears d^2 thereon transverse to the rock-shaft, to which ears are pivoted at d^3 the hubs of two oppositely-extended rocker-arms d^4, each arm having thereon a projection d^5 to abut against the side of the collar d below the pivotal point of attachment of the rocker-arm. The arms are preferably slotted at their extremities, as at d^6, to be adjustably attached to connecting-rods d^7, pivoted at their upper ends to collars c^6, fast on the guide-rods c^2.

Referring now to Fig. 1, it will be seen

that when the rock-shaft D is turned to elevate either of the rocker-arms d^4 the projection d^5 thereof abutting against the collar d will cause the arm to move with the rock-shaft just as if it were rigidly attached thereto, and through the connecting rod or link d^7 will raise the connected guide frame or support. The weight of the latter acting upon the rocker-arm d^4 will normally maintain the projection d^5 thereon pressed against the collar d, the guide-frame descending by its own weight, or, if desired, springs may be employed for this purpose. If a spool or other object should get into its descending path, the guide-frame would be stopped thereby, but the rock-shaft D would continue its rocking movement, the rocker arm or arms d^4, connected to the stopped frame, turning on their pivotal points d^3 relatively to the rock-shaft, as shown in dotted lines at the left, Fig. 1. It will thus be evident that the guide-frames are positively elevated but that they are not positively depressed, and that the connection between the frames and the actuating rock-shaft is so constructed as to permit either or both of the guide-frames to be stopped in their descent without derangement or breakage and without interfering with the continued movement of the rock-shaft.

My invention is not restricted to the exact form of connection herein shown between the guide-frames and the actuating rock-shaft, as the same may be modified without departing from the spirit and scope of my invention.

I claim—

1. In a spooling machine, a vertically movable guide-frame, an actuating rock-shaft, a rocker arm jointed to said rock-shaft, above the longitudinal axis of the latter, a projection on the rocker-arm to be engaged by a part of the rock-shaft below the point of attachment of the arm, and a connecting rod between the frame and arm, whereby movement of the rock-shaft in one direction will positively elevate the guide-frame, the jointed rocker arm permitting the frame to stop in its downward movement if obstructed when the rock-shaft is moved in the opposite direction, substantially as described.

2. In a spooling machine, a vertically movable guide frame, a rock-shaft, connections between it and the guide frame, including a rocker arm jointed to the rock-shaft eccentrically, and a projection on the rocker arm to be engaged by a part of the rock-shaft when the latter is turned in one direction, to thereby positively elevate the guide frame, stoppage of the latter in its downward movement turning the rocker arm relatively to the rock-shaft, substantially as described.

3. In a spooling machine, vertically movable guide frames, a common actuating rock-shaft, two oppositely extended arms jointed thereto above its longitudinal axis, and positively connected respectively to the guide frames, and a projection on each arm to normally engage a part of the rock-shaft below the joint, whereby said arms are positively elevated alternately when the shaft is rocked, to elevate the guide frames, stoppage of the latter in their downward movement swinging the connected rocker-arm upon its joint relatively to the rocker-shaft, substantially as described.

4. In a spooling machine, a reciprocating guide-frame, a rock-shaft having a collar fast thereon, a rocker arm jointed to said collar and having a projection to bear against the collar, and a connection between the guide-frame and rocker-arm, whereby oscillation of the rock-shaft will move the guide frame in one direction, stoppage of its movement in the opposite direction turning the rocker arm on its fulcrum oppositely to the movement of the shaft, substantially as described.

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

ALONZO E. RHOADES.

Witnesses:

GEO. OTIS DRAPER,

S. F. SMITH.