Dec. 1, 1925. **1,563,648**

C. A. PIERCE

BUNCH BUILDING SPINNING FRAME CAM

Filed Aug. 31, 1925

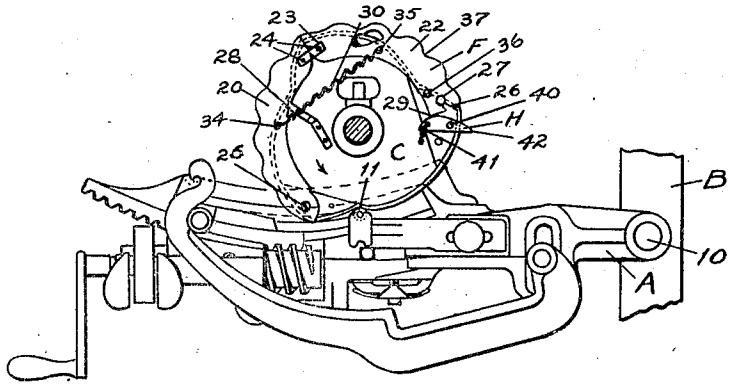

Fig. 1.

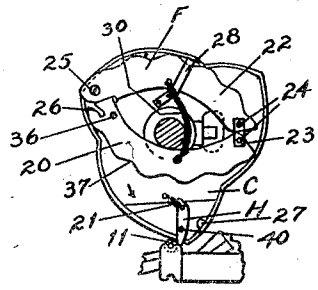

Fig. 2.

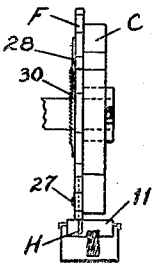

Fig. 3.

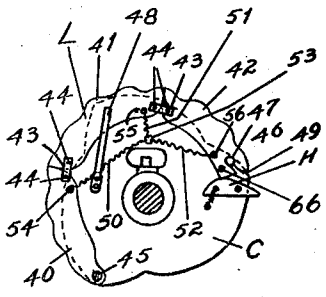

Fig. 4.

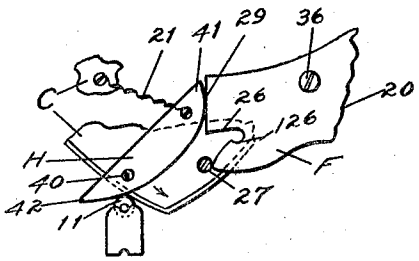

Fig. 5.

INVENTOR.
Clarence A. Pierce
BY
Gardner D. Pearson
ATTORNEYS.

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CLARENCE A. PIERCE, OF LOWELL, MASSACHUSETTS.

BUNCH-BUILDING SPINNING-FRAME CAM.

Application filed August 31, 1925. Serial No. 53,551.

To all whom it may concern:

Be it known that I, CLARENCE A. PIERCE a citizen of the United States, residing at Lowell, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Bunch-Building Spinning-Frame Cams, of which the following is a specification.

This invention relates to a common type of spinning frame wherein there is a builder motion including a builder cam and arm for the purpose of normally moving the rail up and down to build yarn on the bobbins.

Its purpose is to wind a small amount of yarn in a bunch so-called when the spinning frame is first started after doffing. This is now accomplished in various ways, including a foot operated pedal.

The purpose of my device is to make the building of this bunch substantially automatic.

I accomplish this purpose by using in connection with a builder cam, a collapsible cam, the outer or working edge of which is so cut as to engage the follower on the builder arm, or an extension thereof, and to cause it to move up and down a substantially large number of short strokes until the bunch is built, after which an automatic trigger mechanism trips the collapsible cam whereupon the main builder cam continues its normal operation.

In the drawings, Fig. 1 is an elevation from the inside of a spinning frame showing the ordinary type of builder arm, cam follower, and cam with my attachment. This view shows the collapsible cam as set.

Fig. 2 is an elevation of the main cam with the collapsible cam collapsed.

Fig. 3 is a view as from the right of Fig. 2, but showing the collapsible cam set.

Fig. 4 is an elevation of a collapsible cam made up of three members instead of two.

Fig. 5 is a detail showing the action of the trigger mechanism.

In the drawings, A represents the builder arm pivoted to the frame B at 10, and carrying the usual follower roller 11. This roller usually projects a small distance on each side, or on one side of the main builder cam C, or it can be made so to extend.

Attached to the main builder cam C is an auxiliary collapsible cam F which is made of two or more segments 20 and 22, of relatively thin metal connected together by links 23, and pivot screws 24. One end of one section 20 is pivoted by pivot 25 to the face of the main cam C, and the free end of the other section 22 has a notch 26 which can be caused to engage a pin 27 in the face of cam C.

To hold the auxiliary cam F snugly against cam C I prefer to use a guide arm 28 which may be slightly springy so as to make a snug but slidable contact.

The tension spring 30 is attached at its ends to pins 34 and 35, each on a section or segment 20 and 22 of cam F.

The trigger H is carried by a pivot 40, on the face of cam C and has one end 41 which when cam F is set rests against the end 29 thereof. The other end 42, when the cam is set, projects out far enough so that as the cams revolve it will engage the cam follower 11, and as the cam continues to revolve will force back the end 29 and the notch 26 from the pin 27 until the collapsing spring 30 operates to collapse cam F as shown in Fig. 2.

It will remain collapsed and out of the way, and also the trigger will remain idle until again set.

The face or edge of this cam F when it is set, extends out beyond the face of cam C, and is cut at 37, 37, into a relatively large number of small depressions whereby as they engage successively the cam follower, they cause the follower arm A to move up and down with relatively short strokes.

To hold trigger H in the correct position and to bring it back to that position after it has passed the follower roller 11, I prefer to use a tension spring 21 as clearly shown in Fig. 5.

Instead of a cam with two segments I may use three or more, as shown in Fig. 4.

In Fig. 4 I show a cam L composed of three segments, 40, 41 and 42 connected together by links 43, 43, and pins 44, 44. One end of section 40 is pivoted by pivot 45 to the face of main cam C, and in the free end 49 of section 42 is a notch 46 which can be caused to engage a pin 47 similar to pin 27.

I prefer to use a guide arm 48 similar to 28, and the three springs 50, 51, 52 connected by a link 53, the other ends being attached to pins 54, 55 and 56 on the segments 40, 41, 42, respectively.

With either cam I provide near the free end a setting knob 36 or 66. In order to set I may reach it with the hand or with a hook on the end of a stick when the cam F or L

is in the right position, and by pulling engage the end notch 26 or 46 with its appropriate stop pin 27 or 47.

Preferably notch 26 is cut out at 126 to prevent the free end of the collapsible cam from accidentally slipping out.

I claim:

1. The combination in a spinning frame having a builder cam and a builder arm with a cam follower in engagement with said cam; of a pin carried by the builder cam; with an auxiliary cam comprising a plurality of segments pivoted together end to end, the end of one segment being so pivoted to the builder cam that the segments can swing inside the rim of the builder cam and the free end of the last segment being adapted to engage said pin; spring means to keep said collapsible cam normally collapsed; and a trigger carried by the builder cam in position to engage the cam follower and to disengage the collapsible cam from said pin.

2. The combination in a spinning frame having a builder cam and a builder arm with a cam follower in engagement with said cam; of an auxiliary collapsible cam carried by the builder cam also in engagement with the cam follower; spring means to keep said collapsible cam normally collapsed; a pin carried by the builder cam adapted to hold the collapsible cam expanded; and a trigger carried by the builder cam in position to engage the cam follower and to disengage the collapsible cam from said pin.

CLARENCE A. PIERCE.