

(No Model.)

2 Sheets—Sheet 1.

W. P. CANNING.

BOTTOM CONE LIFTING DEVICE FOR FLY FRAMES.

No. 484,845.

Patented Oct. 25, 1892.

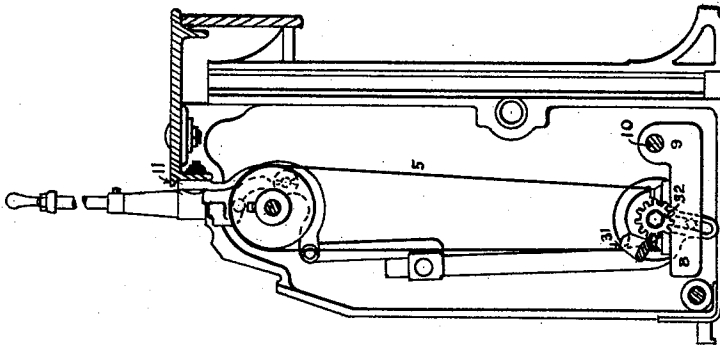


FIG. 2.

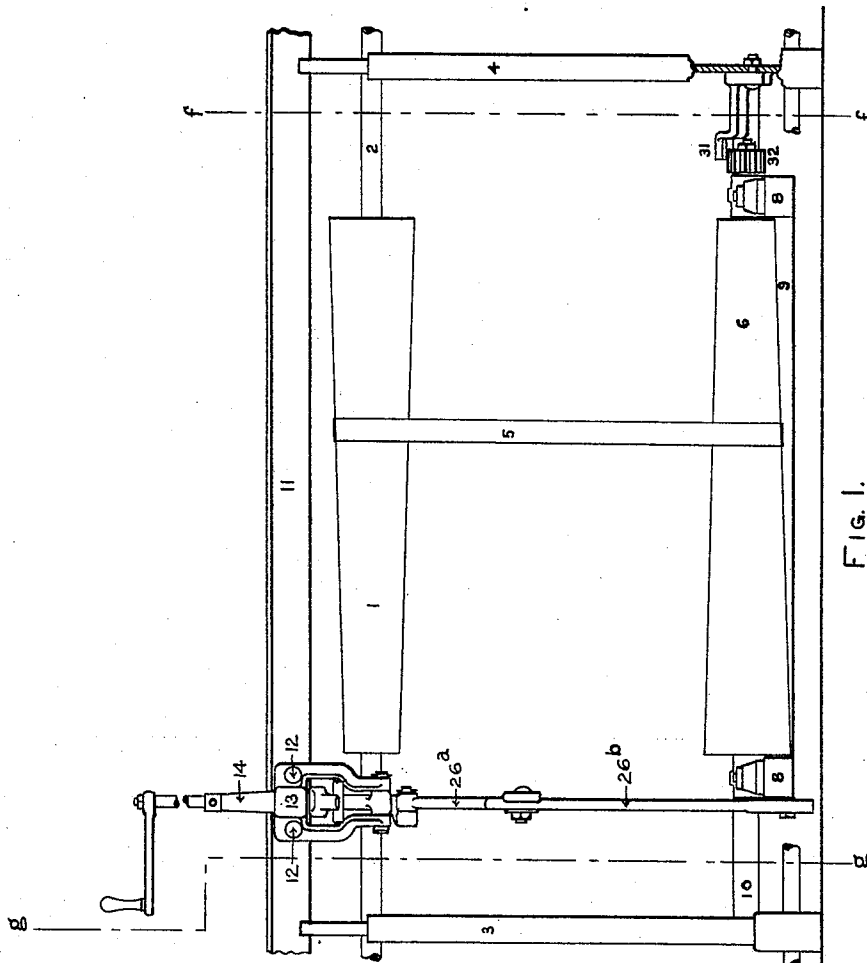


FIG. 1.

WITNESSES.

Henry C. Lee
C. M. Sweeney

INVENTOR.

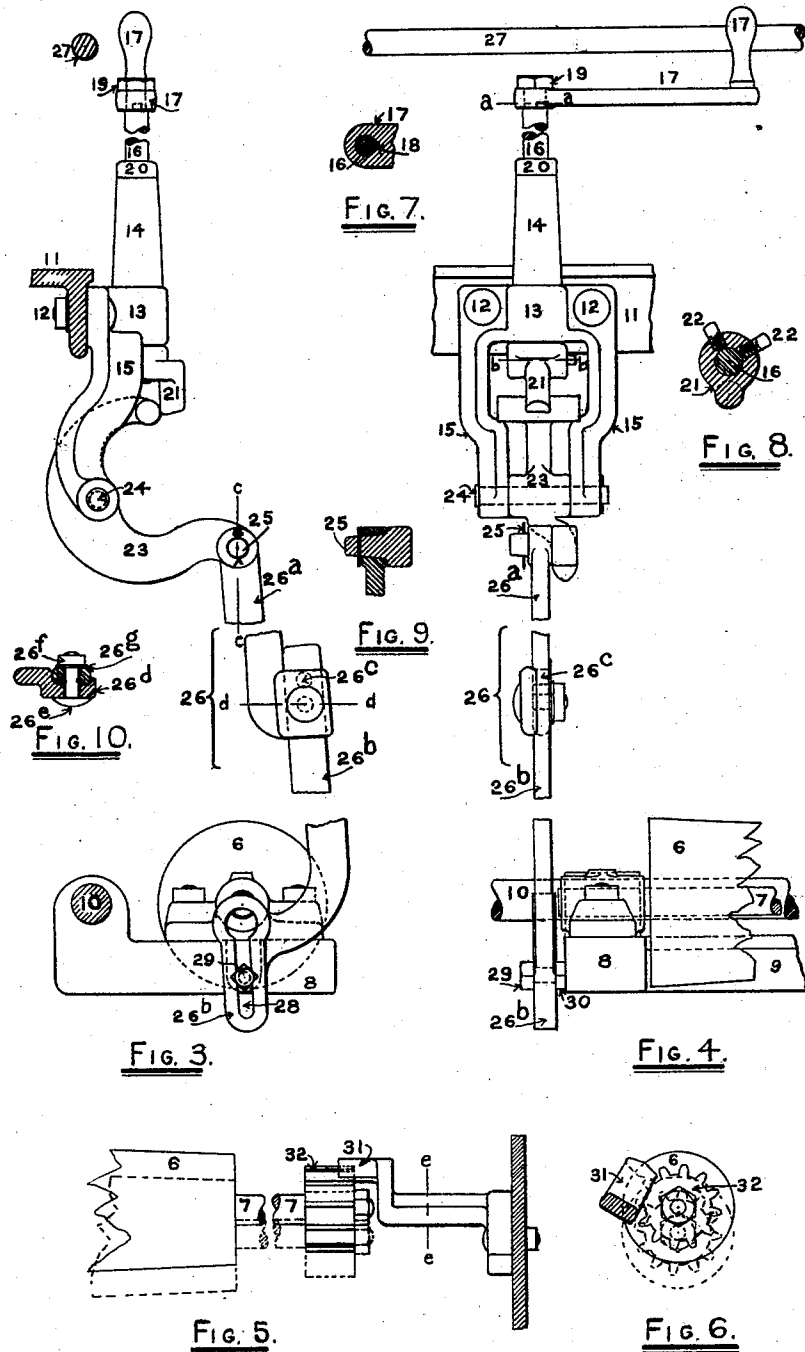
William Pitt Canning
By Chas. F. Randall
his Attorney

W. P. CANNING.

BOTTOM CONE LIFTING DEVICE FOR FLY FRAMES.

No. 484,845.

Patented Oct. 25, 1892.



WITNESSES.

Henry Cabot
C. M. Sweeney

INVENTOR.

William Pitt Canning
By Chas. F. Randall
his Attorney

UNITED STATES PATENT OFFICE.

WILLIAM PITT CANNING, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO THE
LOWELL MACHINE SHOP, OF SAME PLACE.

BOTTOM-CONE-LIFTING DEVICE FOR FLY-FRAMES.

SPECIFICATION forming part of Letters Patent No. 484,845, dated October 25, 1892.

Application filed July 1, 1892. Serial No. 438,730. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM PITT CANNING, a citizen of the United States, residing at Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and useful Improvement in Bottom-Cone-Lifting Devices for Fly-Frames, of which the following is a specification, reference being had therein to the accompanying drawings.

In spinning-machines of the class known as "fly-frames" it is necessary after a set of bobbins has been fully wound with material to wind up the "frame" again, as it is called. In this operation the cone-rack and belt-guide carried thereby are moved endwise in a direction the reverse of that in which they were moved during the regular working of the machine for the purpose of carrying the cone-belt back to the starting end of the cones preparatory to beginning to wind upon a fresh set of bobbins. To facilitate the winding up, the bottom cone should be lifted slightly for the purpose of easing up on the cone-belt and permitting it to be slipped readily along the cones.

My present invention consists in a novel construction and combination of devices designed to be used in machines of the class specified for the purpose of enabling the bottom cone to be lifted readily when required.

My invention will first be described in connection with the accompanying drawings, and then be particularly pointed out in the claims at the close of this specification.

In the accompanying drawings, Figure 1 is a view in rear elevation representing the cones of a fly-frame, the devices employed for lifting the bottom cone, the stop-dog by which the bottom cone is prevented from revolving while raised, and part of the framing of a fly-frame. Fig. 2 is a view of the same parts in section on the line *ff* in Fig. 1, looking toward the left-hand side in Fig. 1. Fig. 3 is a view in section on the line *gg* in Fig. 1, looking toward the right-hand side in the latter. Fig. 4 is a view in rear elevation of the cone-lifting devices, part of the bottom cone, part of its bearing-support, part of the shaft around which the latter turns, and part of the machine-framing. Fig. 5 is a view in

rear elevation showing part of the bottom cone, the gear mounted on the shaft thereof, and the stop-dog, which engages with the said gear when the bottom cone is raised. Fig. 6 is a view in section on the line *ee* in Fig. 5, looking toward the left-hand side in the latter. Fig. 7 is a view in horizontal section on the line *aa* in Fig. 4. Fig. 8 is a view in horizontal section on the line *bb* in Fig. 4. Fig. 9 is a view in vertical section on the line *cc* in Fig. 3. Fig. 10 is a view in horizontal section on the line *dd* in Fig. 3.

At 1 is represented the top cone, and at 2 the shaft thereof, which turns in bearings in the cross-pieces 3 and 4 of the machine-framing.

At 5 is shown the cone-belt, and at 6 the bottom cone, the shaft 7 of which has bearings on the side arms 8 of a swing-frame 9, which is hung, as shown, upon a shaft 10, around which it is free to move. To the roller-beam 11 is secured by bolts 12 12 the cone-raise stand 13, the same being formed with an upwardly-extending bearing portion or pipe-box 14 and a pair of downwardly-projecting arms 15 15.

Supported in an upright position within the bearing or pipe-box 14 is the cone-raise rod or shaft 16, the same being provided with a crank or handle 17, by means of which it may be turned when it is desired to raise or lower the cone-swing frame 9.

In Fig. 7 I have shown the pin 18, by means of which the shaft 16 and the handle 17, which latter is mounted upon the reduced upper end of the shaft, are caused to turn together, the handle being held in place on the shaft between a shoulder on the latter and the nut 19, which is turned on the threaded end of the shaft. A collar 20 on the shaft 16 rests on top of the end of the bearing or pipe-box 14 and supports the shaft vertically. On the lower end of the shaft 16 is fitted the tubular boss of the cone-raise crank 21, the said boss having passed therethrough two clamping-screws 22 22, which take bearing against the periphery of the shaft 16. The upper side of the boss of the crank 21 takes bearing against the surface of the stand 13 at the base of the bearing for the shaft 16, and thereby the said shaft is prevented from rising through the

said bearing. The pin of the crank bears against a cross-piece formed at the end of the upper arm of the cone-raise knee 23, which is essentially a bell-crank lever and is pivoted on the pin or stud 24, passing through holes in the lower ends of the arms 15 15 of the bracket or stand 13. On the end of the horizontal arm of the knee or bell-crank 23 is formed a stud 25, which has applied to it an eye at the upper end of the cone-raise rod 26, which at the lower end thereof is in engagement with the cone-swing frame 9. Through the devices described the swing-frame 9 will be raised whenever the rod or shaft 16 and crank 21 are partially rotated by hand by power applied to the handle 17 from the position in which the crank and handle are represented in Figs. 3 and 4 to the diametrically-opposite position thereof. The swing-frame will be held raised by the devices themselves if the handle 17 be moved a little beyond the said diametrically-opposite position, for then, the crank 21 having been carried slightly beyond the center, the weight of the swing-frame, as transmitted through the rod 26 and the knee or bell-crank 23 to the crank 21, will continue the rotation of the shaft 16 and handle 17 in the same direction as that in which it was moved by hand until the said handle brings up against the shipper-rod 27, against which it will remain pressed. At the lower end thereof the rod 26 is formed with a buttonhole-shaped slot 28, the enlargement of which is uppermost. Through this slot extends the stem of a bolt 29, the threaded end of which enters one of the side pieces or arms 8 of the swing-frame, the head of the bolt being outside of the connecting-rod 26, and a lock-nut 30 being placed between the rod and the arm 8 and turned up against the side of the said arm.

The parts are so placed and proportioned that in practice the bolt 29 shall not touch the bottom of the slot 28 except when the handle 17 is moved to turn the rod or shaft 16 and crank 21, and thereby rock the knee or bell-crank 23 and draw upward the rod 26. When the said rod is thus drawn upward, the bottom of the slot 28 comes into contact with the bolt 29, and the swing-frame 9 and bottom cone 6 then are raised and the cone-belt 5 is slackened. Normally, however, the parts stand in about the relative positions in which they are represented in Figs. 3 and 4, the bottom cone and swing-frame being suspended in the cone-belt 5.

In order to provide for application of the lifting devices to frames of different heights, I make the connecting-rod 26 extensible or variable in length by forming it in two portions 26^a 26^b, as shown in Figs. 3 and 4, the said portions being secured together in suitable manner to enable the length of the rod to be increased or diminished, as required. The portion 26^b has a number of holes 26^c bored through the upper end thereof at a slight distance apart, and the upper portion

26^a has at its lower end an offset part 26^d, having a bolt-hole formed through the same. A bolt 26^e is passed through the said bolt-hole and the selected hole 26^c to connect the portions 26^a 26^b together, the said bolt receiving upon its threaded end the nut 26^f and washer 26^g. When it is desired to disconnect the rod 26 from the swing-frame, it is necessary only to bring the head of the bolt 29 and the enlargement of the slot 28 in apposition, and then the connecting-rod may be slipped off the bolt.

For the purpose of preventing the bottom cone from turning or being turned while raised, the stop-dog 31 is secured to the machine-framing in such position adjacent to the gear 32 on the shaft 7 of the bottom cone as that the said gear is free from the said stop-dog in the usual working position of the bottom cone and swing-frame, such position being approximately the same as that indicated in dotted lines in Figs. 5 and 6, yet when the latter are raised to a certain height the teeth of the said gear will be carried into position to engage with the said stop-dog, as indicated in full lines in Figs. 5 and 6, which will hold the lower cone from rotation until the swing-frame and said cone are permitted to descend.

I claim as my invention—

1. The combination, with the lower cone and a movable bearing-support for the shaft thereof, of a cone-raise rod or shaft having a handle by which it may be turned, a cone-raise crank mounted on said rod or shaft, a bell-crank lever acted upon by the said crank, a connecting-rod intermediate the bell-crank lever and movable bearing-support and having a buttonhole-slot in its lower end, and a screw passing through the said slot and entering the movable bearing-support, substantially as described.

2. The combination, with the lower cone and a movable bearing-support for the shaft thereof, of a cone-raise rod or shaft having a handle by means of which it may be turned, a cone-raise crank mounted on said rod or shaft, a bell-crank lever acted upon by the said crank, an extensible connecting-rod intermediate the bell-crank lever and movable bearing-support made in two pieces, having means for adjustably connecting them together, the lower of said pieces being formed with a buttonhole-slot, and a screw passing through the said slot and into the bearing-support, substantially as described.

3. The combination, with the lower cone and a movable bearing-support for the shaft thereof, of a cone-raise stand, the cone-raise rod or shaft having a handle by means of which it may be turned and mounted in a bearing in the said stand, a collar on said rod or shaft above the bearing, a cone-raise crank attached to the said rod or shaft below the bearing, a bell-crank lever acted upon by the said crank and pivoted on a projecting part of the stand, an extensible connecting-rod in-

intermediate the bell-crank lever and bearing-
support made in two pieces, having means for
connecting them together adjustably, the
lower of said pieces being formed with a but-
5 tonhole-slot, and a screw passing through the
said slot and into the bearing-support, sub-
stantially as described.

In testimony whereof I affix my signature in
presence of two witnesses.

WILLIAM PITT CANNING.

Witnesses:

SAML. G. STEPHENS,
CHANNING WHITAKER.