

(No Model.)

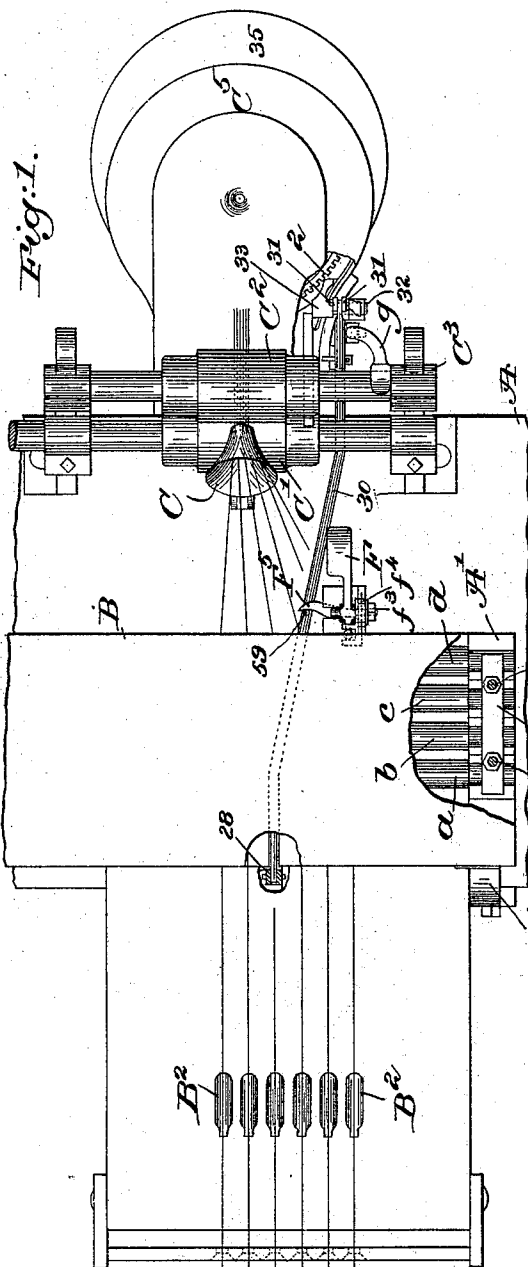
3 Sheets—Sheet 1.

J. BRADY, Jr. & H. C. SPENCE.

RAILWAY HEAD.

No. 534,992.

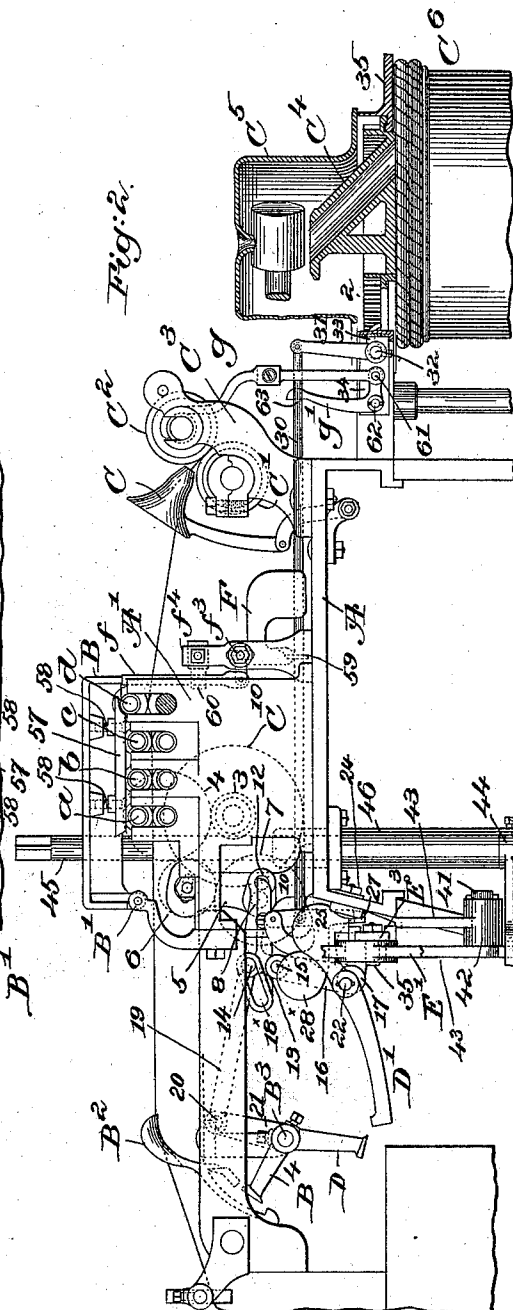
Patented Mar. 5, 1895.



Witnesses.

Edward F. Allen

Thomas J. Drummond.



Inventors.

John Brady, Jr.,
Henry C. Spence
by Crosby & Gregory Attys.

(No Model.)

3 Sheets—Sheet 2.

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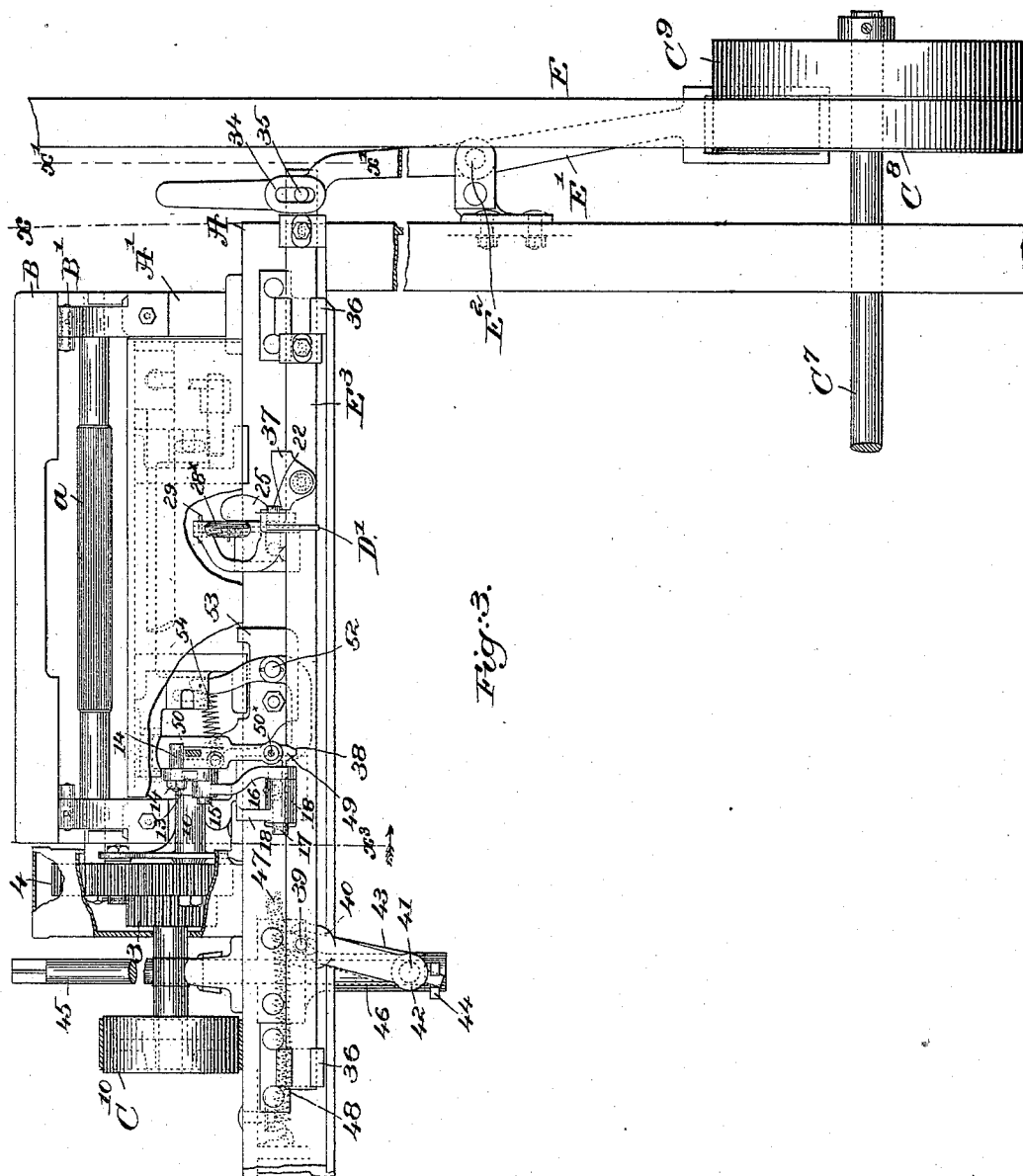


Fig. 3.

Witnesses.

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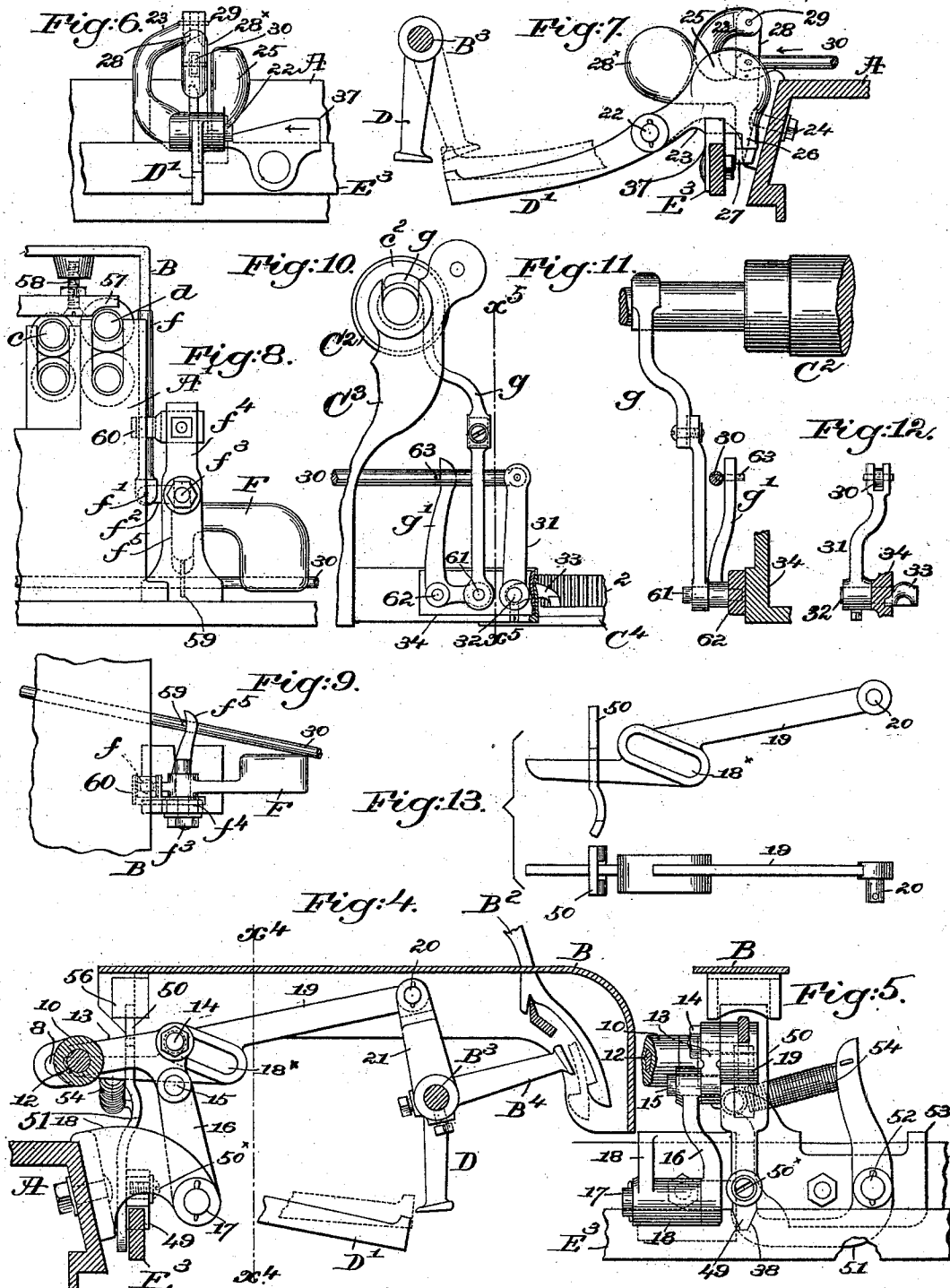
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UNITED STATES PATENT OFFICE.

JOHN BRADY, JR., AND HENRY C. SPENCE, OF FALL RIVER, MASSACHUSETTS.

RAILWAY-HEAD.

SPECIFICATION forming part of Letters Patent No. 534,992, dated March 5, 1895.

Application filed July 18, 1894. Serial No. 517,892. (No model.)

To all whom it may concern:

Be it known that we, JOHN BRADY, Jr., and HENRY C. SPENCE, of Fall River, county of Bristol, State of Massachusetts, have invented an Improvement in Railway-Heads, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

10 This invention has for its object more especially the combination with a railway-head having a coiler, of a simple and efficient stop-motion mechanism whereby, when the coiler can has been properly filled the railway-head will be automatically stopped.

Our improved stop-motion is also so constructed that the head will be automatically stopped when the sliver winds or laps, as it is called, about one of the fluted drawing-rolls, and also should the drawn sliver wind or lap about the calender roll.

Figure 1 is a plan view of the central part of a railway-head, with our improvements added, to enable our invention to be understood, the cover for the drawing-rolls being partially broken out, the parts of the machine to the right of the dotted line x Fig. 3, being omitted; Fig. 2, a partial side elevation and section thereof, to the left of dotted line x' Fig. 3; Fig. 3, a partial rear or left-hand end elevation of the machine shown in Fig. 2, with the entire shipper handle and driving belt and pulleys added. Fig. 4, is a partial section to the right of the line x^3 Fig. 3; Fig. 5, a section looking to the left of the section line x^4 Fig. 4. Figs. 6 and 7, are details showing the main stop-lever, the trip-finger, shipper-bar, and some of their co-operating devices; Figs. 8 and 9, details showing connections between the cover of the drawing-rolls and the slide-rod 30; Figs. 10 and 11, details of the devices between the calender-rolls and the slide-rod 30, Fig. 11 being a partial section in the line x^5 Fig. 10. Fig. 12, is a section to the right of the said line x^5 . Fig. 13, shows two views of the bar 19, to be described.

The table A; the roller-stand A' having suitable bearings for a set of four drawing-rolls a, b, c, d , their actuating gearing; the cover B for said drawing-rolls, said cover being hinged at B'; the spoon trumpets B² having notched arms; the rock-shaft B³, its arm B⁴

to co-operate with the spoon trumpets when an end breaks on its way to the drawing-rolls; the sliver trumpet C; the calender-rolls C', C², 55 having their journals supported in bearings of a suitable stand C³ mounted on the table A; the coiler-top C⁴ having a gear 2, and the coiler cover C⁵ and coiler can C⁶; the main driving shaft C⁷, having a fast pulley C⁸ and a loose pulley C⁹, the back roll pulley C¹⁰ belted, in practice, with a pulley not shown, on the main driving shaft; said pulley C¹⁰ being on a short shaft having at its inner end a gear 3, to engage a gear 4 on the lower back roll, are and 65 may be all as usual, and in practice the coiler-top will be rotated in the usual manner. For use with these old parts we have devised a stop-motion mechanism, which we will now describe.

Referring first to the gear 4 on the lower back roll, it engages an intermediate gear 6 adapted to rotate about a stud made adjustable in a quadrant-shaped slot, shown by dotted lines Fig. 2, in a stand 5 which we 75 have erected on the table A, said stud being made adjustable in order to provide for adjustment of the drawing to the length of the staple being used.

The intermediate gear 6, see Fig. 2, engages 80 a toothed gear 7 fast on a short shaft 8 mounted in a stand 10, said shaft having at one end a crank 12 (see Figs. 4 and 5), or its equivalent, an eccentric. The crank 12 enters a hole in one arm of a link 13 having a 85 stud 14 and jointed loosely at 15 to a rocker-link 16 mounted loosely on a stud 17 connected to the table A, said rocker-link serving to steady the link 13 in its movements. This stud 14 enters a diagonal slot 18^x in a 90 bar 19 journaled at 20 to an arm 21 fast to the rock-shaft B³ before described. This rock-shaft has been provided by us with a third or stop arm D, the rotation of the crank in the regular working of the machine rock- 95 ing the shaft B³. Co-operating with this stop arm is what we shall denominate the main stop lever D', the shape of which is best shown in Figs. 2, 4 and 7, said lever being pivoted at 22 on a stand 23 secured to the 100 table A, by a bolt 24, the upper end 25 of said lever being the heavier, and having a toe 26. When the machine is running regularly, the said toe rests on a lug 27 of a trip-finger 28

pivoted at 29 on a part of the said stand 23, said finger having a weighted portion 28^x which acts normally to keep the lug end of the finger pressed toward the table A and under the said toe.

The trip-finger has jointed to it a rod 30, which, at its other end is jointed to the upper end of an arm 31 fast to a rock-shaft 32 having its bearings in a stand 34 bolted to the top casing 35 of the coiler, said casing being as usual.

The rock-shaft 32 has a finger 33 which overlies the usual rotating coiler-top C⁴, so that when the coiler can has been properly filled and the said top begins to rise, due to a sufficient quantity of material, it acts on said finger, turns the rock shaft, and causes the rod 30 to be moved to the left, viewing Figs. 1 and 2, thus moving the trip-finger from below the toe of the main stop-lever, so that the heavier or weighted end of said lever drops, thus elevating its opposite end in the path of movement of the stop-arm D, as represented by dotted lines in Fig. 7, thus stopping the further rotation of the rock-shaft B³.

When the rock-shaft is stopped, as stated, while the crank 12 continues to rotate, the parts would break were it not for the stud 14 slipping in the slot 18^x of the arm 19.

The belt E for driving the main shaft is shown in Fig. 3, as on the fast pulley and as embraced by the usual forked part of the shipper lever E' pivoted at E², the said lever above said point being slotted at 34, see Fig. 3, to receive a pin 35 fast on the shipper-bar E³ adapted to slide longitudinally in suitable guide-ways 36 attached to the table A.

The shipper-bar has adjustably connected with it a lifting shoe 37, and at a distance therefrom is provided with a locking notch 38, the end of the bar having a suitable stud 39 which engages the upper end of a forked lever 40 having a projecting pivot 41 which enters a hub 42 of a stand 43 secured to the table A, the lower end of said lever being embraced, see Figs. 2 and 3, by the forked arm 44 of the usual upright shipper-shaft 45 mounted in a bearing 46 secured to the under side of the said table. The shipper-bar has a stud 47, which has connected to it one end of a suitable spring 48, the opposite end of the spring being connected to a suitable hook on the table A, the said spring acting normally to keep the shipper-lever in position to retain the belt on the loose pulley.

The locking device consists essentially of wedge-like block 49 attached to a finger 50 pivoted at 50^x on a lever 51, in turn pivoted at 52 on a stand 53 secured to the table A, said lever 51 being acted upon by a spring 54, one end of which is attached to a suitable hook on the stand 53, so that the said spring normally acts to keep the block 49 in the notch 38 of the bar E³. The block 49 and finger 50 constitute a locking device for the bar E³.

The finger 50 is slotted for the passage

through it of the bar 19, and the upper end of the finger enters a guide 56.

When the locking device is lifted by the rising of the bar 19, as before described, after the arrest of the stop-arm D, the said locking device releases the shipper-bar and lets the spring 48 act to move the said bar, turn the shipper-lever and put the belt E on the loose pulley. In case the sliver or end winds or laps about one of the drawing-rolls, the said rolls will be separated and the cover B will be lifted through the bar 57 and screws 58, we having interposed this bar and screws, see Figs. 2 and 8, to enable the drawing-rolls to be changed for those of a different diameter, as from one and one-eighth to one and one-half and yet enable the cover to operate properly with stop-motion devices, which we shall now describe.

One end of the cover B, see Figs. 2 and 8, when the rolls are not wrapped or lapped with sliver, rests on the upper end of a plunger *f* jointed at *f'* to a short arm *f*² of a lever *F* pivoted at *f*³ on a stand *f*⁴, the long arm of said lever being, as represented, heavily weighted, so that the lever normally acts to lift the plunger. This lever *F* has a third arm or projection *f*⁵ bent backwardly to cross the rod 30 and contact with a pin 59 on said rod, so that said rod is moved to the left, viewing Figs. 1 and 2, to move the trip-finger 28, as before described, and release the main stop-lever, but this time due to the accumulation of fiber on a drawing-roll. The plunger is kept in line by a suitable guide 60 attached to a stand *f*⁴.

The journal of the upper calender-roll C² is embraced, as shown, by the hooked end of a link *g*, see Figs. 2 and 11, jointed at 61 to one end of a lever *g'* pivoted at 62 on the stand 34, the upper end of said lever resting normally against a pin or projection 63 of the rod 30, said lever moving said rod to the left, as before described, when sliver winds or laps about a calender-roll sufficiently to lift the same far enough to turn said lever, the sliding of the said rod to the left, as before described, effecting the stopping of the main shaft.

From the foregoing it will be understood that the main shaft may be stopped automatically whenever either the coiling can becomes full, or the sliver breaks before reaching the rolls, or if the sliver winds or laps about either one of the drawing-rolls or a calendering roll.

The filled can having been removed and another supplied, or the error or fault which caused the machine to be stopped having been corrected, the operator will engage the shipper-lever E' and turn it in the direction to put the belt E on the fast pulley, and in doing this another part of our invention comes into play, viz:—the lifting shoe 37 acts against the under side of the main stop-lever and lifts its heavier end so that the toe thereof is placed on the lug 27 of the trip-finger, leaving the parts set in their working position.

This invention is not limited to the exact shape of the stop-motion devices shown, as we are not aware that prior to our invention any machine having drawing-rolls, calender-rolls, and a coiling mechanism, has ever had combined with it a mechanical stop-motion to automatically stop the machine on the completion of one operation and error in normal condition of two other operations, nor are we aware that a series of devices have ever been combined with one single slide-rod, as 30, to effect the stopping of the main shaft under conditions such as specified; nor are we aware that a single operation of the operator has been sufficient to restore to normal working condition devices capable of being thrown out of normal condition by several different occurrences.

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

1. In a railway head, a sliding shipper bar, means to move it in one direction; a locking device to engage said shipper bar; a stop arm, means to move it, said means having provisions by virtue of which the locking device is withdrawn; the main stop lever, a trip finger to hold it in its normal position, and a slide rod to move said trip finger, the movement of the trip finger releasing the main stop lever and arresting the movement of the stop arm thus causing the withdrawal of the locking device from the shipper bar, for the purposes set forth.

2. The shipper bar, the slotted finger 50 provided with a locking device to engage said shipper bar, a spoon having a notched arm, the rock shaft B³ provided with an arm B⁴ to engage the notched arm of the spoon, and a slotted bar 19 connected to said rock shaft and in contact with said slotted finger, combined with a rotating crank 12, a link 13 having a stud 14 to enter the slot of said arm, and a support for said link, substantially as described.

3. In a railway head, a shipper-bar, means to move it in one direction, a locking device to hold said bar in one of its positions, a rotating crank 12, a link 13 moved thereby and provided with a stud, a support for said link, and a rock-shaft B³ provided with an arm D, and a spoon adapted to be engaged thereby, combined with a slotted bar intermediate said rock-shaft and said locking device, the slot in said slotted bar receiving the stud of said link, to operate, substantially as described.

4. In a railway-head, a weighted trip-finger 28, a support for the same, combined with the main stop-lever D' having a weighted end and provided with a toe to co-operate with a lug on the said trip finger, and means to move the trip-finger, substantially as described.

5. In a railway-head, a weighted trip-finger 28, a support for the same, combined with the main stop-lever D' having a weighted end and provided with a toe to co-operate with a lug on the said trip finger, means to move the

trip-finger to release the toe of the main stop-lever, a shipper-bar, and a lifting shoe to lift the heavier end of the main stop lever, substantially as described.

6. In a railway head, a sliding shipper-bar, means to move it in one direction, a locking device to engage said shipper-bar, a stop arm, and means intermediate said arm and locking device having provisions in virtue of which the locking device is withdrawn on arresting the movement of the stop arm, the main stop lever, and the trip finger, combined with the rotating top plate of the coiling apparatus, the finger 33 adapted to be moved thereby, the connected arm 31, and a rod to connect said trip finger and arm 31, to operate, substantially as described.

7. In a railway-head, a sliding shipper-bar, means to move it in one direction, a locking device to engage said shipper-bar, a stop-arm, means to move it said means having provisions in virtue of which the locking device is withdrawn, the main stopping lever, a trip-finger to hold it in its normal position; and a slide-rod to move said trip-finger provided with a projection, combined with the drawing-rolls, their cover, and intermediate devices located between said cover and the said projection on the said slide-rod, whereby when the sliver winds or laps about a roll a cover is lifted to enable the said intermediate devices to move the slide-rod and effect the stopping of the machine, substantially as described.

8. In a railway-head, a sliding shipper-bar, means to move it in one direction, a locking device to engage said shipper-bar, a stop-arm, means to move it, said means having provisions in virtue of which the locking device is withdrawn, the main stop lever, a trip-finger to hold it in its normal position, a slide-rod to move said trip-finger provided with a projection, as 63, combined with a lever, a calendering-roll, and intermediate connections between said calendering-roll and lever whereby when the sliver winds or laps about a calendering-roll the said slide-rod may be moved to effect the stopping of the machine, substantially as described.

9. In a railway head, a series of drawing-rolls, a cover for the same, bars resting on the journals of said rolls, and adjustable supports for said cover on said bars, combined with stopping mechanism, substantially as described, actuated by the lifting of said cover for the purposes set forth.

10. A railway head containing the following instrumentalities, viz: a main shaft, a shipper bar, a spring to move it in one direction, a locking device to hold the shipper-bar normally in position to enable the motion of the main shaft to be continued; a set of drawing rolls, a movable cover for the same; a coiling mechanism having a movable cover; a slide rod, and devices intermediate it and the said locking device to move it and effect the release of the shipper bar; and devices between said drawing-rolls and said slide rod,

and between the cover of said coiling device
and said slide rod to automatically effect the
stopping of the railway head when either the
drawing rolls have sliver wound or lapped
5 about them, or the coiling device becomes
filled, substantially as described.

In testimony whereof we have signed our

names to this specification in the presence of
two subscribing witnesses.

JOHN BRADY, JR.
HENRY C. SPENCE.

Witnesses:

ARBA N. LINCOLN,
CHARLES L. FOOTE.