(No Model.) 2 Sheets—Sheet 1.

C. A. UPTON.

EVENER FOR RAILWAY HEADS.

No. 387,701. Patented Aug. 14, 1888.

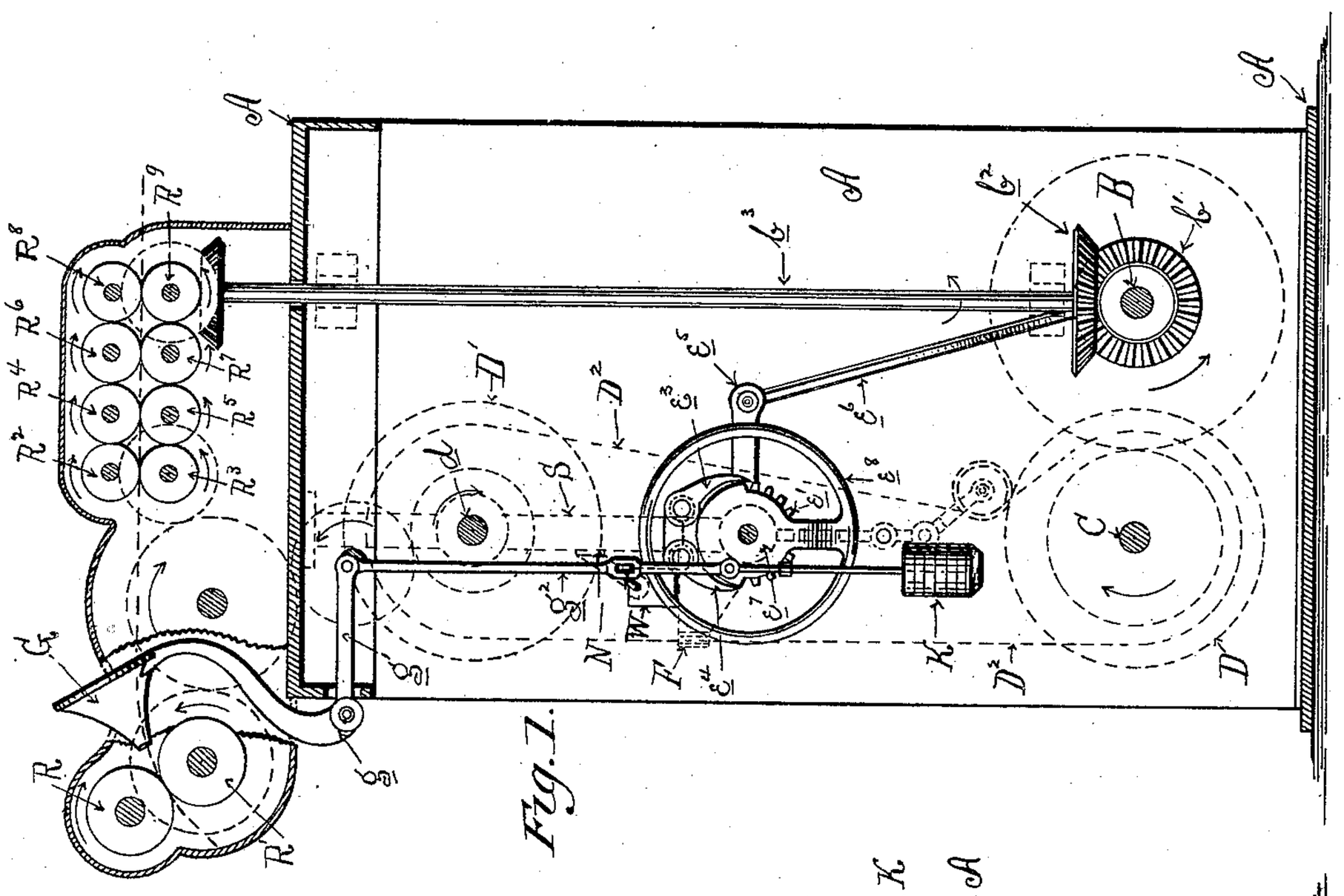

Fig. 1.

Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

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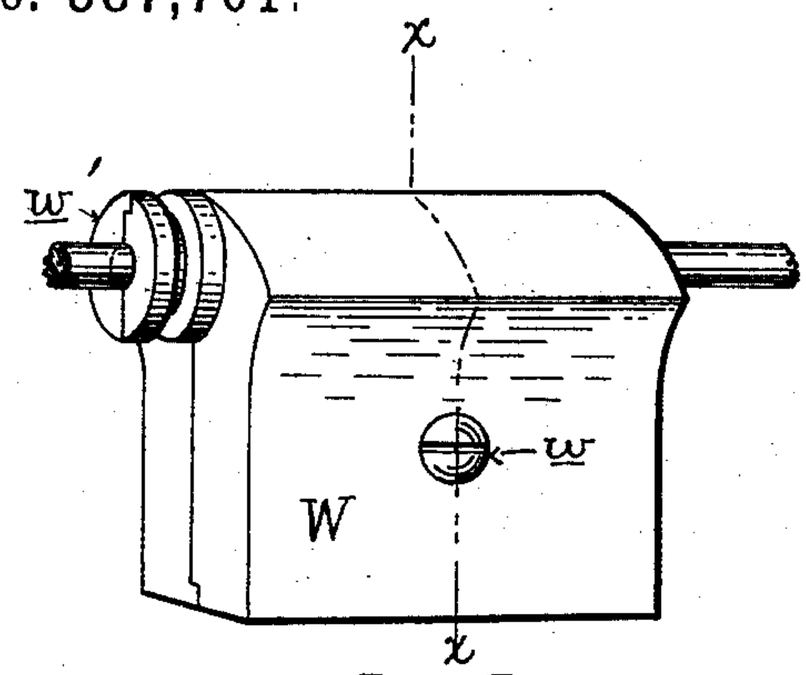

Fig-3

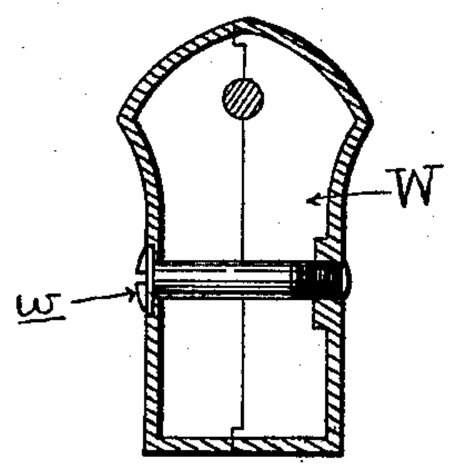

Fig-4

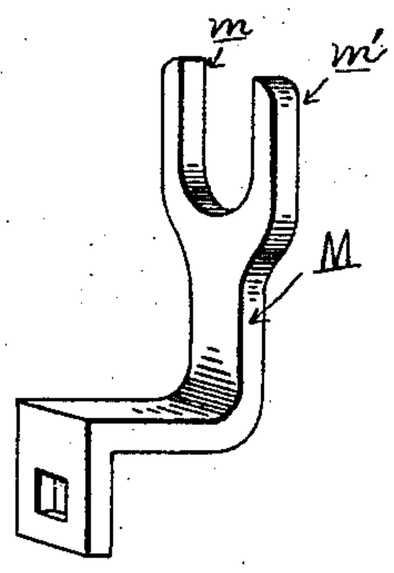

Fig-5

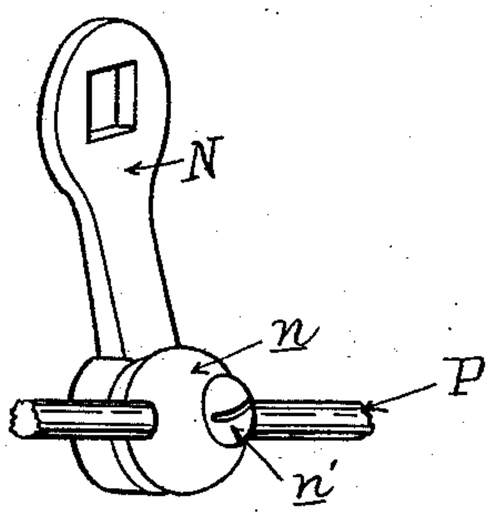

Fig-6

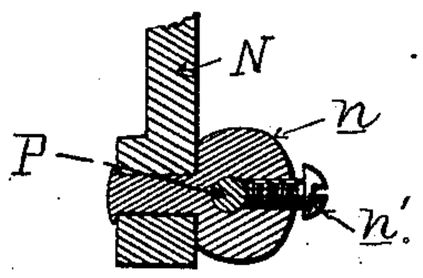

Fig-7

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UNITED STATES PATENT OFFICE.

CLARENCE A. UPTON, OF LOWELL, MASSACHUSETTS.

EVENER FOR RAILWAY-HEADS.

SPECIFICATION forming part of Letters Patent No. 387,701, dated August 14, 1888.

Application filed November 5, 1886. Serial No. 218,058. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE A. UPTON, 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 Evener for Railway-Heads, of which the following is a true and complete specification, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to devices which control the speed of the drawing-rolls according to the amount of cotton fed to the machine; and it consists of the devices and combinations hereinafter described and shown.

Referring to the drawings, Figure 1 is a side section and skeleton diagram of the railway-head provided with my improvement. Fig. 2 is a front elevation of the same, with the last pair of rolls removed, the frame being shown in section. Fig. 3 is a perspective view of the traveling weight W. Fig. 4 is a section of the same on the line *x x*. Fig. 5 is a perspective view of the fork M. Fig. 6 is a perspective view of the bracket N. Fig. 7 is a vertical median section of a portion of the same.

The machine is supported within the framework A A A, Figs. 1 and 2.

Power is applied to the machine through the main shaft B, which drives the shaft C, carrying the lower conical drum, D, by means of the gear-wheels *b* and *c*. The main shaft B is provided with a miter-wheel, *b'*, which, engaging with a similar wheel, b^2, drives the vertical shaft b^3, which in turn, by means of suitable gearing, drives the three pairs of feeding-rolls R^4 R^5 R^6 R^7 R^8 R^9, Fig. 2. The upper conical drum, D', revolves with the shaft *d*, which is supported by the standards S and S', bolted to the frame A, and drives the drawing-rolls R, R', R^2, and R^3, by means of suitable gearing, R^{11}, as shown.

The conical drums D and D' are opposed to each other in direction, the smaller end of one being opposite the larger end of the other, and are connected by the belt D^2, by which the drum D' is driven. By shifting the belt D^2 toward or away from the smaller end of the drum D' the speed of the rolls R, R', R^2, and R^3 is increased or diminished.

The screw E is journaled in the standards S and S' and carries the shipper F, by which the belt D^2 is shifted as the screw E is turned.

The screw E is provided at its right-hand extremity with a short shaft, *e*, terminating in a ratchet-wheel, *e'*. The shaft *e* supports the collar e^2, carrying the dogs e^3 e^4, adapted to engage with the teeth of the ratchet-wheel *e'*. The collar e^2 is oscillated independently of the shaft *e* by means of the arm e^5 and eccentric-rod e^6 from the main shaft B. The cam e^7 is supported on the end of the shaft *e*, revolves independently of it, and is provided with a balance-wheel, e^8.

The cornet G oscillates upon the rod *g* as a center, and by means of the arm *g'* causes the weighted rod g^2 to rise and fall. The rod g^2 is attached eccentrically to the cam e^7, and revolves said cam to the right as it rises and to the left as it falls, and so allows the dog e^4 or the dog e^3 to engage with the ratchet-wheel *e'*, and so revolve the screw E to the left or to the right, as the case may be. As the amount of cotton delivered to the cornet at any given moment increases, the cornet moves forward, because of the increased friction in its mouth, due to the larger amount of cotton running through it. This causes the weighted rod g^2 to rise and so revolve the cam e^7 to the right, thus allowing the dog e^4 to engage with the ratchet-wheel *e'*, and so revolve the screw E to the left and shift the belt E^2 toward the small end of the drum D', thereby increasing the speed of the drawing-rolls. As the amount of cotton delivered to the cornet decreases, the cornet moves backward, the weighted rod g^2 falls, the belt D^2 is shifted toward the large end of the drum D', and the speed of the drawing-rolls is diminished accordingly. The weight K, suspended from the rod g^2, is not, however, a constant quantity, but is varied according to the weight of the sliver which it is desired to produce and the state of the weather. With the above-described mechanism sliver of a tolerably uniform heft may be produced so long as the cotton is evenly fed to the machine from a constant number of cards; but the moment the number of cards feeding the machine diminishes the weight of the cotton produced is much less. The cause of this is as follows: When the amount of cotton fed to the machine is largely diminished, as by the

breakdown of one or more cards, the belt D^2 is immediately shifted to the large end of the drum D', and the speed of the drawing-rolls R, R', R^2, and R^3 and of the cotton passing through the cornet is greatly diminished. Now, as the weight of the cotton passing through the cornet is diminished its friction with the cornet also decreases but the decrease in friction is not proportional to the decrease in weight of the cotton delivered, and the cornet consequently does not move backward a sufficient distance to entirely counteract the decrease in weight of the cotton delivered. The cotton delivered from the machine is therefore below the required weight or too light. The reverse is the case when the number of cards supplying the machine is increased, as the cotton delivered is over weight or too heavy.

The object of my invention is to provide a mechanism which will counteract the effect of this variation in the proportion which the weight of the cotton running through the cornet bears to its friction with the cornet. To this end I attach to the standard S a bracket, N, (shown in Fig. 6,) having a revolving button, *n*, which is bored out to receive the end of the rod P, and a set-screw, *n'*, which holds the same in place. The other end of the rod P rests in a slot in the weighted rod g^2, as shown in Fig. 2, and it is provided with a weight, W, Figs. 3 and 4, which slides freely upon it.

The weight W, I preferably make hollow and in two pieces, which are held together by the screw *w*, and load it with shot or a similar heavy substance in order that its weight may be conveniently adjusted. The weight W is provided at one end with a slotted button, *w'*, adapted to engage with the arms of the fork M.

To the shipper F is bolted the fork M, Fig. 5, whose arms *m m'* embrace the slotted button *w'* of the weight W and cause it to move backward and forward on the rod P with the belt D^2. Now, as the weight of the cotton passing through the cornet diminishes, and the belt D^2 is thereby shifted toward the large end of the drum D', thereby causing the cotton to pass more slowly through the cornet, the weight W slides along the rod P toward the weighted rod g^2, thereby increasing the weight resting upon the rod g^2 and upon the arm g', and so tending to move the cornet backward sufficiently to counteract the excessive effect of friction in the cornet.

The weight W may be so adjusted in weight that it will exactly counteract the proportional variations of the friction in the cornet corresponding to all the variations in weight of the cotton of which the machine is capable.

What I claim as new and of my invention is—

1. In a railway-head, in combination, the drawing-rolls, the opposing conical drums D D', belt D^2, and gearing intermediate the drums and drawing-rolls to transmit power to said rolls, the cornet G, having a weighted rod, g^2, bearing a weight, K, and the connecting mechanism, substantially as described, whereby the belt is shifted upon said drums, the pivoted weight-bearing arm P, connected to the belt-shifting mechanism, and supplementary weight W, and means, substantially as described, for moving said weight along said arm as the belt is shifted upon said drums, substantially as set forth.

2. In a railway-head, in combination, the drawing-rolls to attenuate the sliver, the opposing conical drums D D' and belt D^2 and intermediate gearing to transmit power to the said rolls, the cornet G, having a weighted rod bearing a fixed weight, K, and connecting mechanism, substantially as shown and described, whereby the said belt is shifted upon said drums and the speed of the said rolls thereby regulated, a weight-bearing arm pivoted at one end to the frame of the machine and connected through a portion of the said connecting mechanism to the said cornet in the manner described, a supplementary weight adapted to slide upon said arm, and means, substantially as described, for automatically moving said weight upon said arm as the speed of the drawing rolls is altered, substantially as set forth.

3. In a railway-head, in combination, drawing-rolls to attenuate the sliver, the conical drums D D', belt D^2, gearing intermediate the drums and the drawing-rolls, the cornet G, its arm g', and weighted rod g^2, the weight-bearing arm P, pivoted to the frame of the machine, connections between said rod g^2 and arm P, and the weight W and shipper F, and connections between said weight and shipper, whereby the weight upon the arm g^2 is increased or diminished as the said belt is shifted upon the said drums, substantially as and for the purposes set forth.

In witness whereof I have hereunto set my hand.

CLARENCE A. UPTON.

Witnesses:

HENRY R. FLANDERS,

CHARLES WASHBURN.