No. 731,764. PATENTED JUNE 23, 1903.

J. R. FORDYCE.

BAT FEEDING AND FORMING APPARATUS FOR COTTON PRESSES.

APPLICATION FILED JULY 22, 1901.

NO MODEL. 2 SHEETS—SHEET 1.

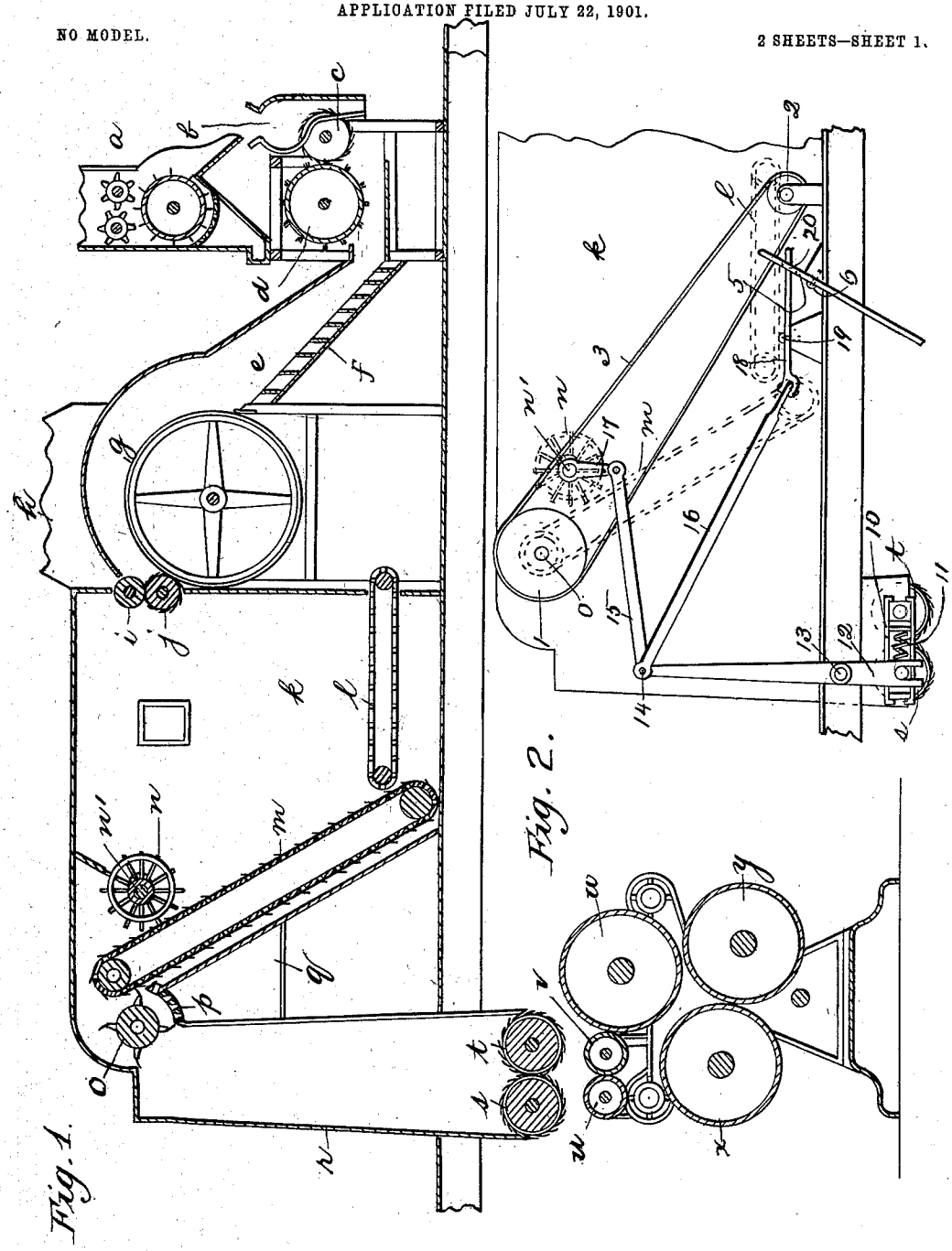


Fig. 1.

Fig. 2.

WITNESSES

Albert B. Blackwood.

Jas. H. Blackwood

INVENTOR

John R. Fordyce

by Wm. Woodcock & Son

Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.

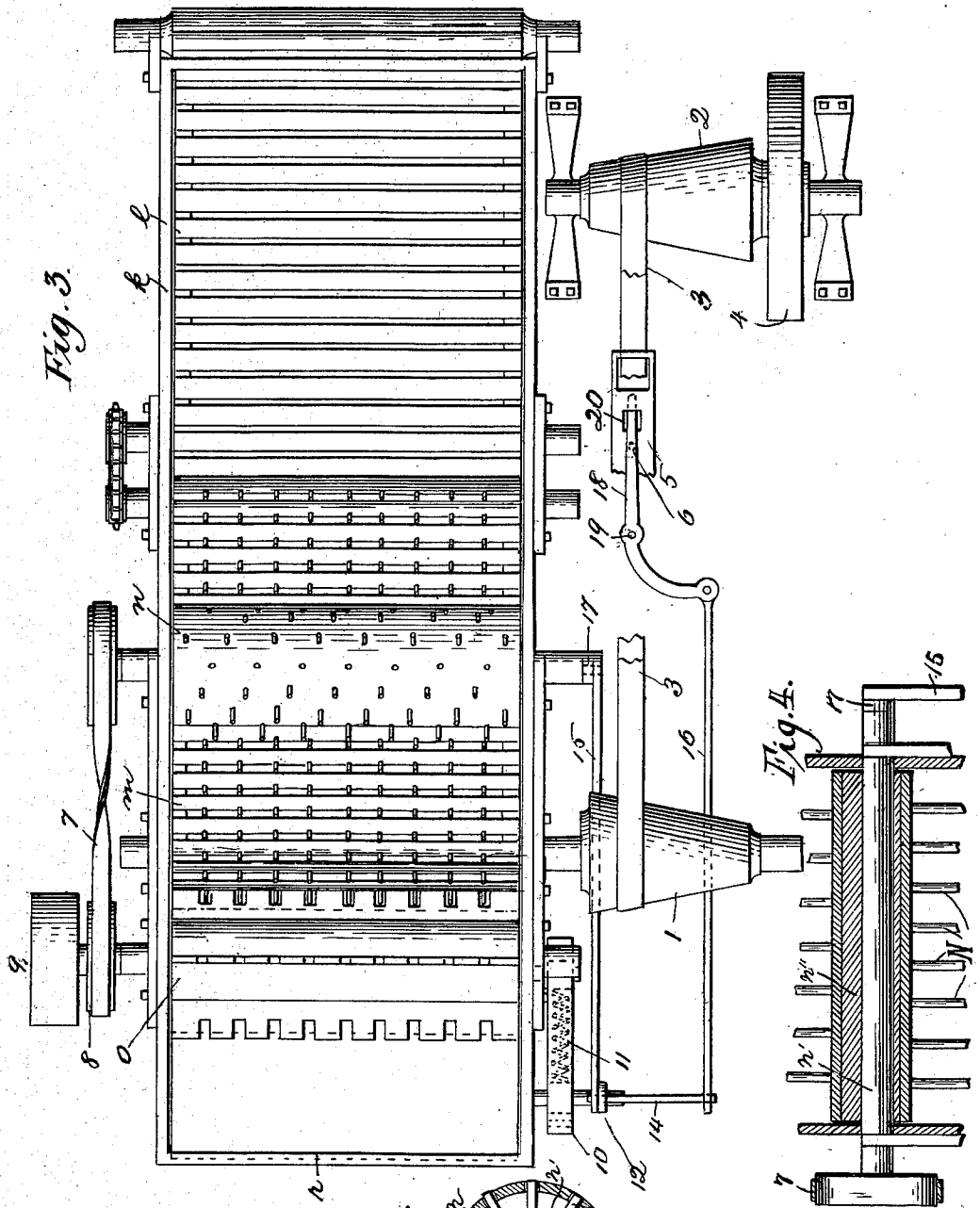
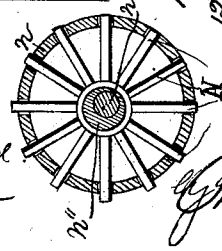


Fig. 4.

Fig. 5.



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Albert B Blackwood

Jas H Blackwood

INVENTOR

John R. Fordyce

by Wm R Woodward & Son

Attorneys

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No. 731,764. Patented June 23, 1903.

UNITED STATES PATENT OFFICE.

JOHN R. FORDYCE, OF PINE BLUFF, ARKANSAS.

BAT FEEDING AND FORMING APPARATUS FOR COTTON-PRESSES.

SPECIFICATION forming part of Letters Patent No. 731,764, dated June 23, 1903.

Application filed July 22, 1901. Serial No. 69,301. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. FORDYCE, a citizen of the United States, residing at Pine Bluff, in the county of Jefferson and State of Arkansas, have invented certain new and useful Improvements in Bat Feeding and Forming Apparatus for Cotton-Presses; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to feeding and bat-forming apparatus for cotton-presses, and has for its objects to provide means to automatically regulate the amount of cotton fed to the bat-former.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal section; Fig. 2, a detail side view in elevation of the apparatus; Fig. 3, a top plan view, and Figs. 4 and 5 are detail views.

Referring to the drawings, *a* is a cotton-cleaning apparatus; *b*, a gin-breast; *c*, a gin-saw, and *d* a revolving brush-wheel for removing the lint from the saw and creating a blast of air for carrying the lint up an inclined flue *e*, provided with perforations *f*, through which the dirt and heavier particles of dust fall. From the flue *e* the cotton is blown against and over a revolving wire-screen drum *g*, and by impact therewith the dust and air is expelled from the cotton and escapes through the screen and out into the open air through a flue *h*. At the inner side of the drum are two doffer-rollers *i j*, which take the cotton from the screen and press it into the form of a thin light bat and also serve to aid in expelling the air. The doffer-rollers feed the cotton into a storing-receptacle *k*. Near the bottom of this receptacle is a horizontal conveying belt or apron *l*, which is driven in the direction of the arrow and carries the cotton to an inclined spiked conveying apron or belt *m*. This latter belt carries the cotton up out of the receptacle to the bat-former hopper. Near the upper end of the belt a drum *n* is mounted, provided with perforations through which are adapted to project disappearing spikes or teeth N, sleeved upon a cylindrical enlargement *n''* of a shaft *n'*, mounted eccentric to the axis of the drum. This drum serves to remove the surplus cotton from the apron and allows only a definite quantity to pass over into the hopper. A ribbed beater-wheel *o* is mounted in the frame of the apparatus just below the upper end of the belt *m* and serves to pick the cotton from the belt, shred it, and scour it over a grid *p*, through which the dirt from the cotton falls into a trash-receptacle *q*. The cotton removed from the belt by the beater-wheel is dropped into a hopper *r*, having downwardly-flaring opposite sides and leading to a pair of doffer-rollers *s t*, provided with rubber flaps or disappearing teeth, which take the cotton from the hopper and feed in a bat form to the preliminary compression-rollers *u v*, which serve to expel the air from the bat, and being driven at a greater speed than rollers *s t* serve to stretch the bat longitudinally. From the rollers *s t* the bat is led to the compress-rolls *w x y*, where it is made into a bale.

The conveying-belts are driven by mechanism consisting of the cone-pulleys 1 and 2, mounted, respectively, on the ends of the rollers of driving-belts *m* and *l*, and connected by a driving-belt 3, the shaft of cone-pulley 2 being provided with driving band-pulley 4, connected to any suitable source of power. A belt-shifter 5 engages the driving-belt 3 for moving it on the cone-pulleys to vary the speed of the conveying-belts. This belt-shifter is pivoted at 6, so as to swing horizontally. The drum *n* for removing surplus cotton from the conveyer *m* is driven by a belt 7, connected to a pulley 8 on the shaft of beater-wheel *o*, the said shaft being driven by pulley 9, connected to any suitable source of power.

The amount of cotton fed from the receptacle to the bat-former hopper is determined by the extent of protrusion of the teeth of drum *n* and the speed of the conveyers *m* and *l*. If the shaft carrying the spikes projecting through the drum *n* be moved nearer to the axis of the drum, so that the spikes will protrude less, and if the belt 3 be shifted on the cone-pulleys, so as to produce a greater speed of the conveyers, more cotton will be fed out of the receptacle and a thicker bat will be formed by the rollers *s* and *t*. In the present invention the speed of the conveyers

and the extent of protrusion of the drum-spikes and the rate of supply to the bat consequent thereon are regulated automatically by the thickness of the bat itself. For this purpose the automatic supply-controlling mechanism is connected with and controlled by the rollers *s* and *t*. The shaft of roller *s* is so mounted in a bracket 10, fixed to the shaft of the roller *t*, as to separate from the latter under a pressure of a bat of a certain thickness, but is held yieldingly against the roller *t* or against the bat between the rollers by a strong spiral spring 11, attached to the housing of the shaft of roller *s*. Pivotally secured to the shaft of roller *s* by a forked or other suitable connection is a lever 12, fulcrumed at 13. The lever 12 is provided at its upper end with a pin 14, on which are pivotally hung rods 15 16. To the end of rod 16 is pivoted an arm 17, secured to the shaft carrying the teeth within the drum *n*. The lower end of rod 16 is pivoted to the end of a bell-crank lever 18, pivoted at 19 and having its free end extending through an aperture 20 in the belt-shifter.

In operation a continuous feed is maintained from the gin to the storing-receptacle and the cotton is stored in the receptacle until a sufficient quantity is obtained to begin the formation of a bale, and it is also allowed to accumulate during the tying and removal of a bale, after which the feed from the receptacle is again started. If the bat formed by and passing through the rollers *s* and *t* becomes too thick owing to an excessive supply of cotton in the hopper, the rollers will separate and rock the lever 12, moving the rods 15 16, the former serving to move the shaft with the teeth thereon farther away from the axis of the drum, so as to cause them to protrude more, and thus remove more cotton from the apron *m*. At the same time the rod 16 will swing around the bell-crank lever 18 and move the belt-shifter so as to shift the belt on the cone-pulleys, and thus lessen the speed of the conveyers and decrease the rate of feed from the receptacle to the hopper and bat-forming rollers. When the supply becomes small, the rollers will approach each other and the reverse of the above operation will be effected. By these means a bat of uniform thickness will be produced.

It is obvious that various changes in the details of my construction may be made without departing from the scope of the invention.

Having thus described my invention, what I claim is—

1. In an apparatus of the character described, the combination of bat-forming rolls, one yieldable relative to the other, means for feeding cotton thereto, a supply-regulating wheel associated with said feeding means and provided with adjustable teeth, and connected instrumentalities associated with the yieldable roll for automatically adjusting the teeth of the regulating-wheel to control the protrusion of said teeth, substantially as described.

2. In an apparatus of the character described, the combination of bat-forming mechanism, having a yieldable member, means for feeding cotton thereto including a supply-regulating wheel provided with adjustable teeth, and connected instrumentalities associated with the yieldable member of the bat-forming mechanism for automatically adjusting the teeth of the regulating-wheel to control the protrusion of said teeth, substantially as described.

3. In an apparatus of the character described, the combination of bat-forming rolls adapted to be spread apart by an excess of cotton being fed therebetween, means for feeding cotton thereto, a supply-regulating wheel associated with said feeding means and provided with adjustable teeth, and connected instrumentalities associated with and controlled by one of said forming-rolls for simultaneously and automatically controlling the feeding means and the protrusion of the teeth of the regulating-wheel, substantially as described.

4. In an apparatus of the character described, the combination of bat-forming mechanism, having a yieldable member, means for feeding cotton thereto, a supply-regulating wheel associated with said feeding means and provided with adjustable teeth, and connected instrumentalities associated with the yieldable members of the forming mechanism for automatically controlling both the feeding means and the protrusion of the teeth of the regulating-wheel, substantially as described.

5. In an apparatus of the character described, feeding means for the cotton, a supply-regulating wheel associated with said feeding means and provided with adjustable teeth, means for adjusting the teeth, and bat-forming rolls arranged to receive cotton from the feeding means connected with the teeth-adjusting means, said rolls being adapted to be affected by an excess of cotton passing therebetween to automatically operate said teeth-adjusting means, substantially as described.

6. In an apparatus of the character described, feeding means for the cotton, a supply-regulating wheel associated with said feeding means and provided with adjustable teeth, means for regulating the feeding means, means for adjusting the teeth of the supply-regulating wheel, and bat-forming rolls arranged to receive cotton from the feeding means connected with the means for regulating the feeding means and the means for adjusting the teeth of the supply-regulating wheel, said rolls being adapted to be affected by an excess of cotton passing therebetween to automatically operate both said feed-regulating and teeth-adjusting means, substantially as described.

7. In an apparatus of the character described, feeding means for the cotton, a supply-regulating wheel associated with said

feeding means and provided with adjustable teeth, means for adjusting the teeth, and bat-forming instrumentalities arranged to receive cotton from the feeding means connected with the teeth-adjusting means, said bat-forming instrumentalities being adapted to be affected by an excess of cotton being fed thereto to automatically operate said teeth-adjusting means, substantially as described.

8. In an apparatus of the character described, feeding means for the cotton, a supply-regulating wheel associated with said feeding means and provided with adjustable teeth, means for regulating the feeding means, means for adjusting the teeth of the supply-regulating wheel, and bat-forming instrumentalities arranged to receive cotton from the feeding means and connected with the means for regulating the feeding means and the means for adjusting the teeth of the supply-regulating wheel, said bat-forming instrumentalities being adapted to be affected by an excess of cotton being fed thereto to automatically operate both said feed-regulating and teeth-adjusting means, substantially as described.

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

JOHN R. FORDYCE.

Witnesses:

MAY HUDSON,

CLIFTON R. BRECKINRIDGE.