

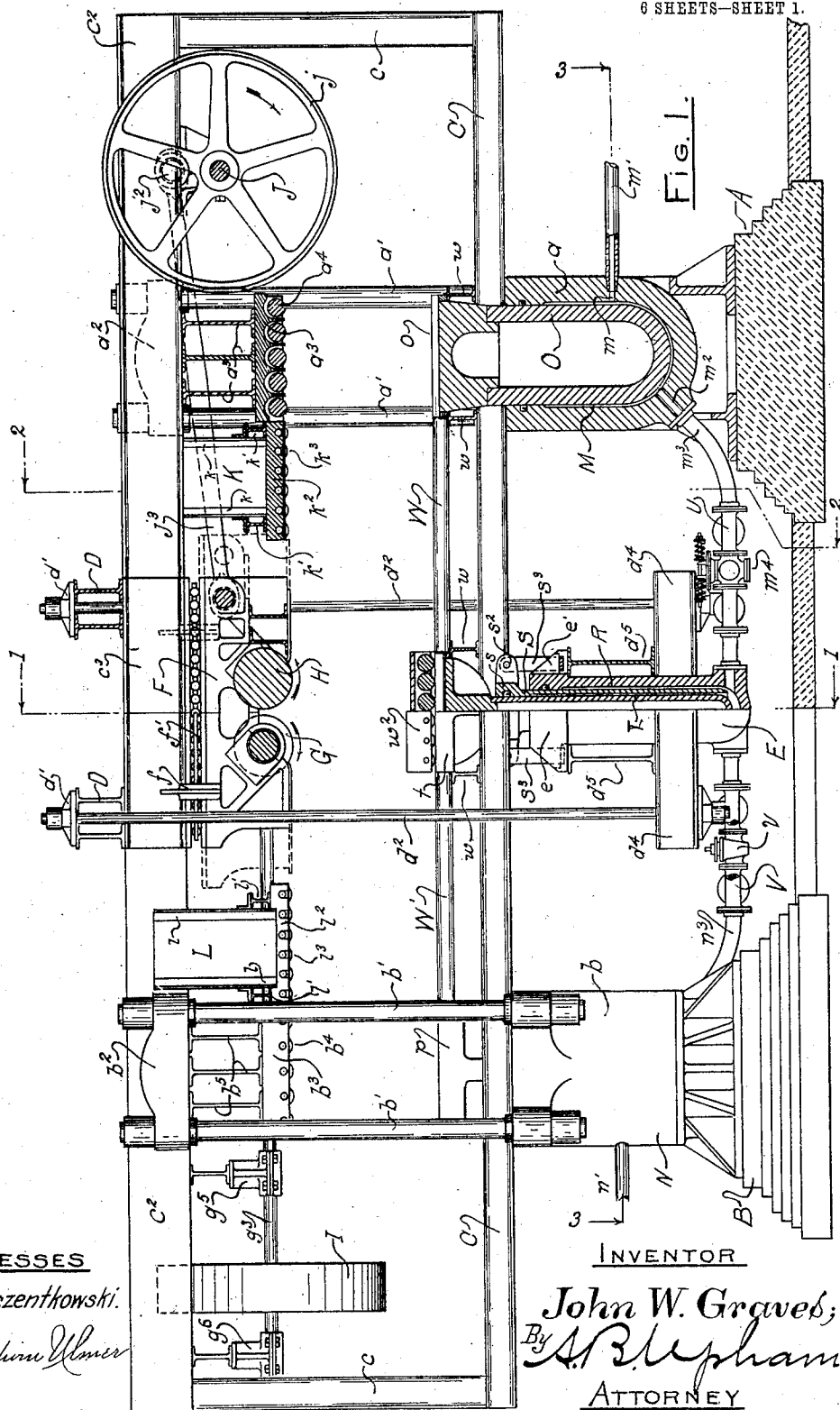
No. 846,199.

PATENTED MAR. 5, 1907.

J. W. GRAVES.
BALING PRESS.

APPLICATION FILED OCT. 12, 1904.

6 SHEETS—SHEET 1.



WITNESSES

A. G. Pieczentkowski.

W. Edwin Ulmer

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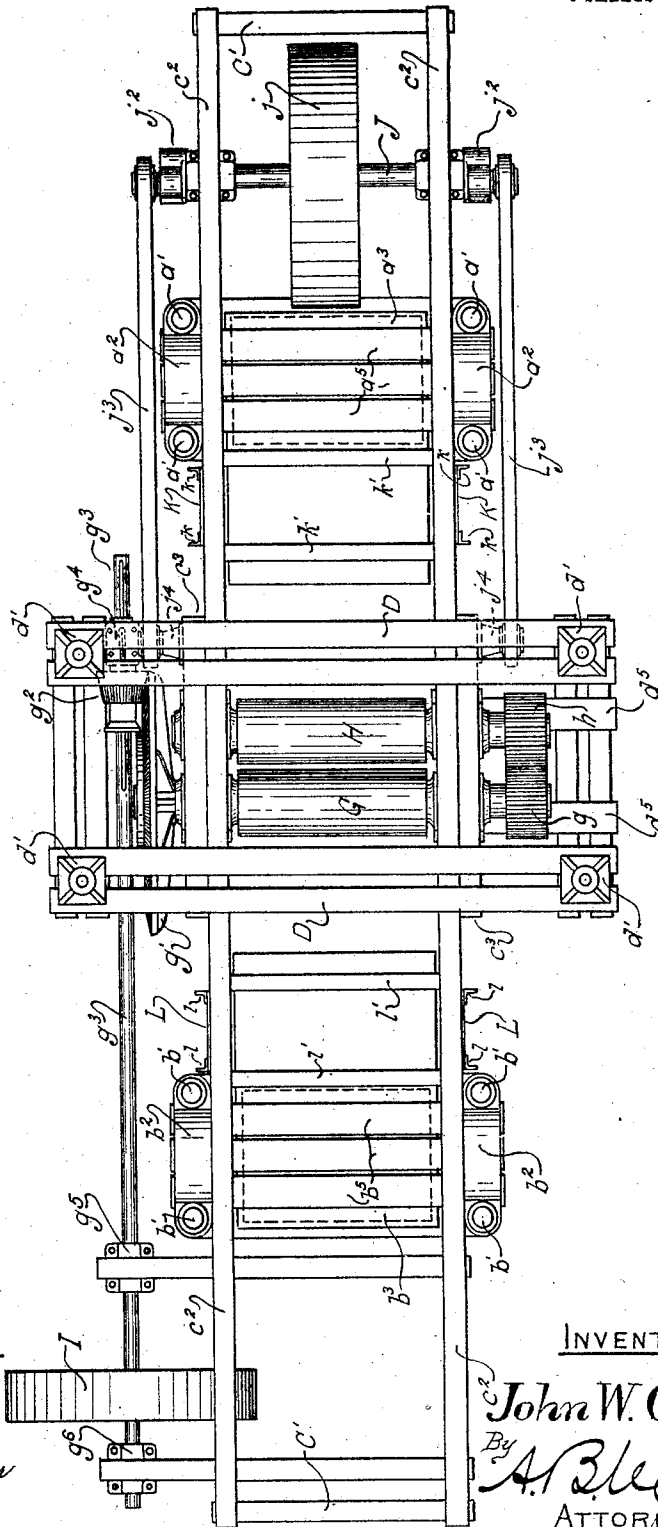


FIG. 2.

WITNESSES

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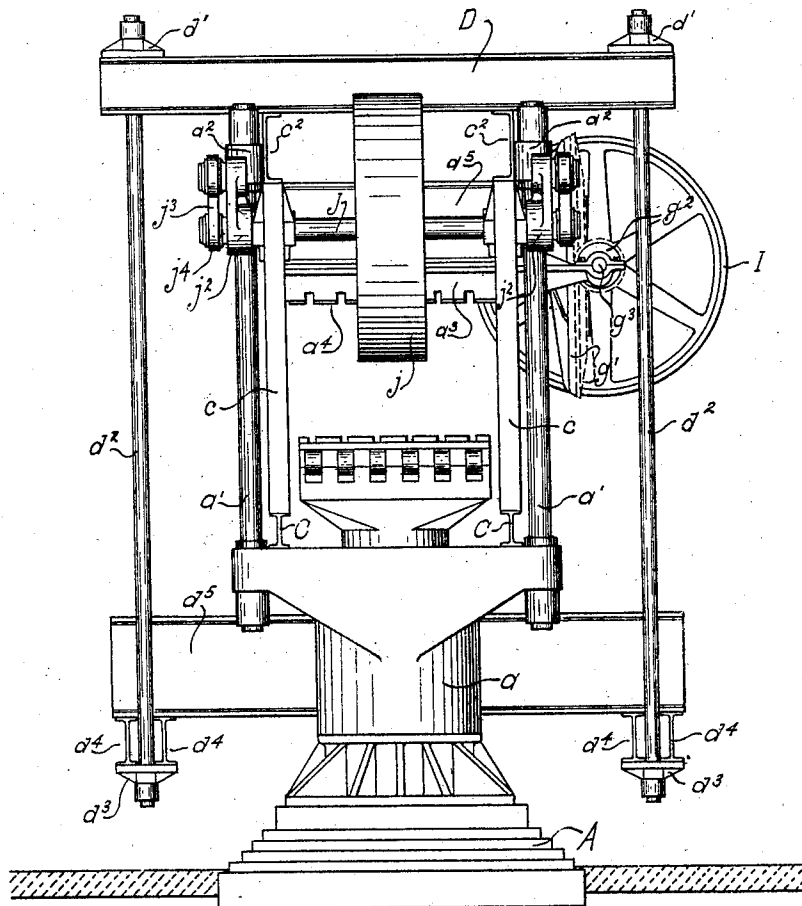


FIG. 3.

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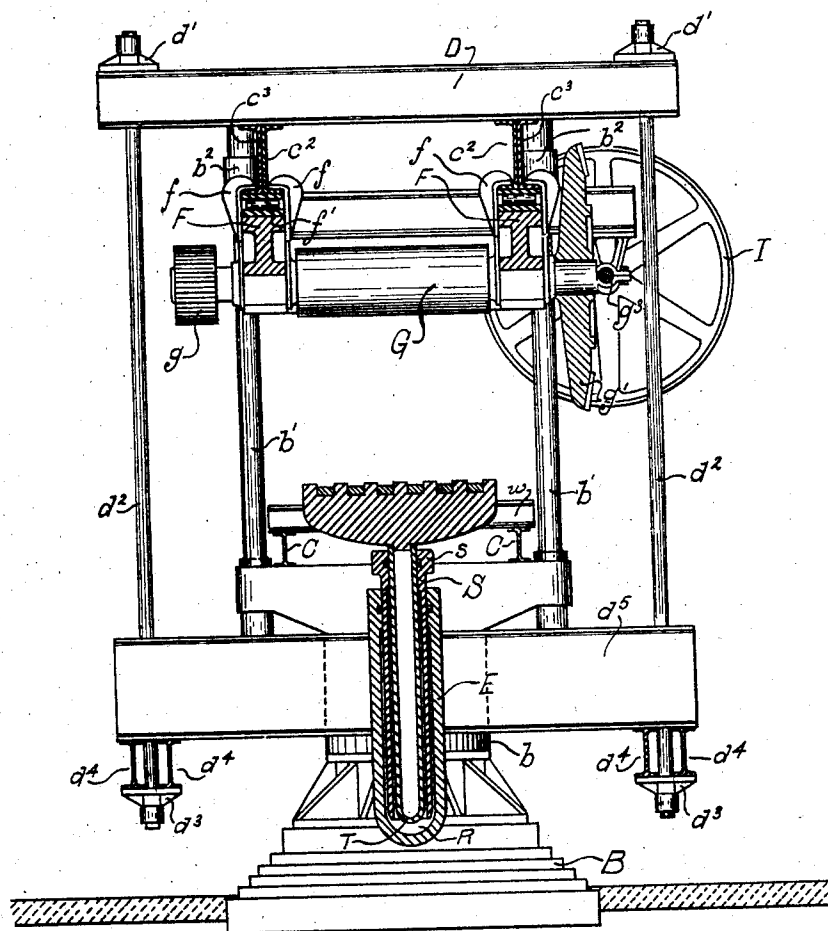


FIG. 4.

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6 SHEETS—SHEET 5.

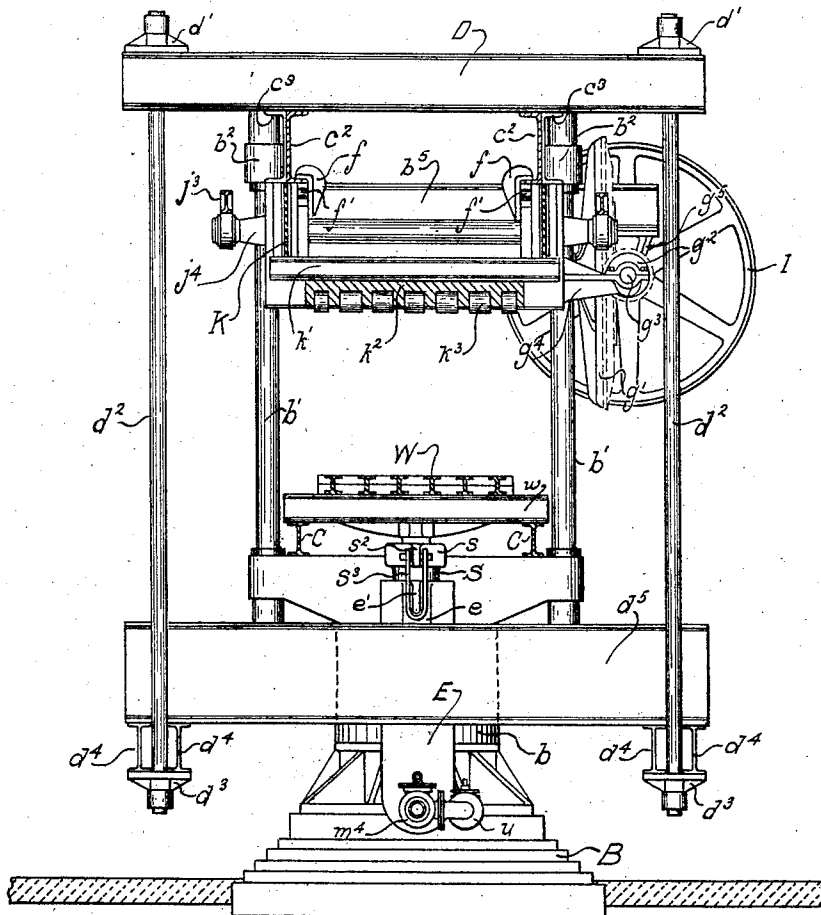


Fig. 5.

WITNESSES

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6 SHEETS—SHEET 6.

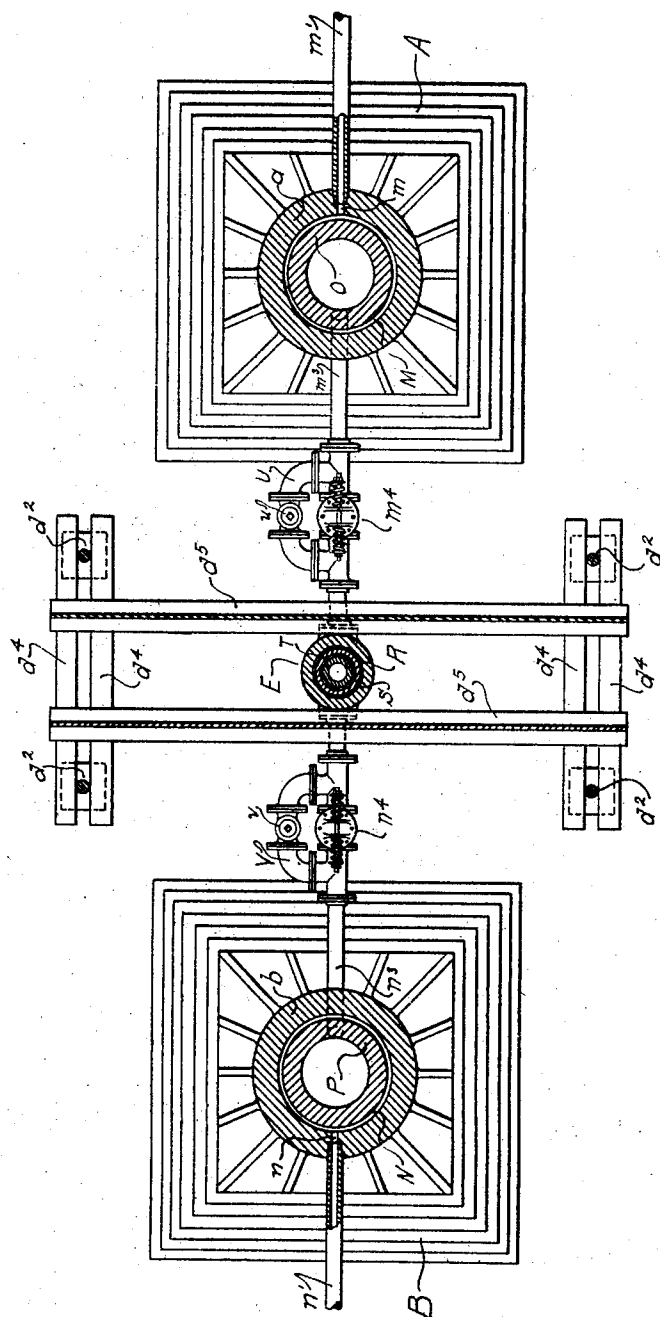


FIG. 6.

WITNESSES.

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UNITED STATES PATENT OFFICE.

JOHN W. GRAVES, OF COVINGTON, TENNESSEE, ASSIGNOR TO INTERNATIONAL COTTON COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF SOUTH DAKOTA.

BALING-PRESS.

No. 846,199.

Specification of Letters Patent.

Patented March 5, 1907.

Application filed October 12, 1904. Serial No. 228,194.

To all whom it may concern:

Be it known that I, JOHN W. GRAVES, a citizen of the United States, and a resident of Covington, in the county of Tipton, in the State of Tennessee, have invented certain new and useful Improvements in Baling-Presses, of which the following is a full, clear, and exact description.

This invention is in the line of baling-presses in which the cotton fiber is compressed into a wad by means of rollers and forced down upon the press-platen until a sufficient quantity thereof has been accumulated to compose a bale.

The object of this invention is the effecting of means whereby the pressure engendered by thus forcing the cotton wad down upon the press-platen shall be utilized to operate one or more other presses containing the bales previously compressed to a certain extent in the first press.

I further design to form a baling-press in which the pressure in the first press shall be intensified to a considerable degree in its effect upon the supplemental presses.

Referring to the drawings forming part of this specification, Figure 1 is a side elevation, the right-hand half in section, of a baling-press embodying my invention. Fig. 2 is a plan view of the same. Fig. 3 is an end elevation of the press. Fig. 4 is a sectional side elevation through the line 1 1 in Fig. 1. Fig. 5 is a similar sectional view, but on the line 2 2 in Fig. 1. Fig. 6 is a horizontal section on the line 3 3 in Fig. 1.

My complete machine is preferably composed of three presses, the central one being the primary and the others the secondary presses. These presses are each of the hydraulic type, although employing oil in place of water, each comprising a cylinder, a piston, and a platen carried by the piston. Above the primary press, whose cylinder is designated by the reference-letter E, are located the packing-rolls G H, which are reciprocated in substantially the usual manner for the purpose of properly laying the wad upon the growing bale. The platen *t* of the primary press is shown in Fig. 1 as provided with a carriage *w*³, movable on ways W W' to the secondary press-platens *o p*.

The cylinder E is connected by suitable pipes *m*³ *n*³ to the secondary cylinders M and

N, respectively, each such pipe being provided with a pressure-valve *m*⁴ and *n*⁴ and a by-pass section U and V, closed by a cock *u* and *v*. As the platen *t* is forced downward under the pressure of the wad being laid by the rollers G H the oil in the cylinder E passes to the cylinders M N. The secondary pistons O P are of a much larger area or cross-section than the piston in the primary cylinder, as best shown in Fig. 6, and the pressure communicated to said pistons O P will therefore be much greater than that originally imparted to the platen *t*.

A further improvement consists in providing the piston T of the primary press with a sleeve R, whereby the pressure communicated to the secondary cylinders may be varied, for it is evident that when said sleeve is fastened down and the piston alone depressed from its elevated position the pressure communicated will be much larger than when both sleeve and piston are forced down together.

The operation of this baling-press is as follows: Having turned the cock *u* wide open, oil is pumped through the pipe *m*¹ until the platen and carriage *t w*² reach the rollers G H, the piston or plunger O being so much heavier than the other as to remain down and the cock *v* being closed. The cock *u* is now closed and the pressure-valve *m*⁴ set at preferably seven hundred and fifty pounds, and the pressure-valve *n*⁴ set at a somewhat greater pressure. The rolls G H being put into operation, the cotton wad is laid in the sacking placed on the platen, continuously forcing down said platen until the bale is formed. This descent of the piston and sleeve T R forces the oil over into the cylinder M, raising the piston O the slight distance of which the quantity of oil in the larger cylinder is capable. This formed bale is then moved over to the platen *p*, being conveyed on the carriage *w*³, and another carriage placed upon the platen *t*. By opening the cock *u* the weight of the piston and platen O *o* forces the oil over to the cylinder E and elevates its piston and platen. Then the cock *u* is closed and the pressure-valve *n*⁴ set at seven hundred and fifty pounds and the valve *m*⁴ at an excess above the same, after which another bale is formed on the platen *t*, thereby giving a first compression

to the bale placed over the platen p , since, as is evident, the oil beneath the primary piston must pass to the piston P and force it upward, while any excess of pressure in forming the
 5 bale on the primary platen over and above the seven hundred and fifty pounds escapes through the other pressure-valve m^4 . This second bale thus formed is moved along to the ways W between the platens t and o , the
 10 sleeve or ring R fastened down, the cock u opened, and the weight of the piston and platen of the secondary cylinder M permitted to raise the piston and platen T t to their elevated position, a new carriage w^2 being of
 15 course first placed thereon and oil having been pumped into the cylinder M until the piston T is raised to bring its platen and carriage up to the rollers G H. Having
 20 changed the pressure-valves n^4 m^4 to twelve hundred and fifty pounds and to an excess thereof, respectively, another bale is formed on the primary platen and the pressure thereof caused to give the increased
 25 pressure above named to the bale already once compressed on the platen p . Following this the cock v is opened, the sleeve or ring R locked to the piston T, the weight of
 30 the piston P caused to elevate the primary platen t , the bale on the platen p tumbled off, the pressure-valve m^4 set to seven hundred and fifty pounds and the valve n^4 to a larger
 35 pressure, and another bale formed upon the primary platen, and thereby giving a first compression to the bale which had been laid upon the ways W, but has been later placed
 40 upon the platen o . From this point onward the operation is a mere repetition of what has already been described.

The detailed construction of this baling-press is as follows: A B are the foundations
 40 supporting the cylinders M N; C C' c w a^3 k' K D l' b^2 b^5 d^5 d^4 , iron beams composing the framework of the machine. The rollers G H are supported by the member F, slidable in
 45 ways f , with friction-rolls f' above said member. This member or carriage is reciprocated through the agency of the pitmen j^3 taking its motion from the crank-arms j^2 on the shaft J, power being communicated to said
 50 shaft by means of the pulley j .

The rollers G H rotate in unison by means of the intermeshing gears g h , the roller G having fixed on its shaft a bevel-gear g' , with which meshes a bevel-gear g^2 , slidable on the
 55 shaft g^3 . The said small gear g^2 is retained in mesh with the large gear g^8 by means of suitable bearings g^4 , rigid with the roller-carriage F. The shaft g^2 is further supported in bearings g^5 g^6 and rotated by power delivered
 60 to the pulley I. This arrangement enables the rollers to be forcibly and continuously rotated while being reciprocated.

To facilitate the removal of bales from the primary to the secondary presses, friction-rolls k^3 , l^3 , a^4 , and b^4 are provided, each

set being rotatively supported immediately above the bales in the roof-sections k^2 , l^2 , a^3 , and b^3 , respectively.

The cylinder-casings a b are rigidly connected with the upper members a^2 b^2 of the
 70 respective presses by the tie-rods a' b' , while the primary press-cylinder E has its supporting beams d^4 d^5 joined to the beams D c^3 by the tie-rods d^2 and caps d' .

The means whereby the sleeve or ring R is
 75 locked from rising with the piston T consists of the swinging latches or hooks s^3 , pivoted to the head S of said sleeve at s^2 and constructed to be engaged by the projections e' of the casting e . Said sleeve is of course provided
 80 with a packing s near its upper end to prevent leakage of the oil within the cylinder.

The oil to be originally introduced into the press-cylinders is pumped through the pipes
 85 m' or n' , as also to replace that lost through leakage.

The construction of the devices for the forcibly-operated bale-forming means is not specifically claimed in this application.

What I claim as my invention, and for
 90 which I desire Letters Patent, is as follows, to-wit:

1. In a baling-press, the combination with a forcibly-operated bale-forming means, and a platen, piston and cylinder coöperating
 95 therewith, of a secondary press operated by the depression of the said piston.

2. In a baling-press, the combination with a forcibly-operated bale-forming means, and a primary platen, piston and cylinder coöperating
 100 therewith, of a secondary platen, piston and cylinder operated by the depression of the first-named piston; the piston area or cross-section of the secondary piston being in substantial excess of that of the primary
 105 piston.

3. In a baling-press, the combination with a forcibly-operated bale-forming means, and a platen, piston and cylinder coöperating
 110 therewith, of a secondary platen, piston and cylinder operated by the depression of the first-named piston; the secondary platen and piston being sufficiently heavy to overbalance the first-named platen and piston.

4. In a baling-press, the combination with
 115 a forcibly-operated bale-forming means, and a platen, piston and cylinder coöperating therewith, of a secondary press operated by the depression of said piston; said piston being provided with a sleeve constructed to
 120 move in unison therewith, or to be locked fast to said cylinder.

5. In a baling-press, the combination with a forcibly-operated bale-forming means, and a platen, piston and cylinder coöperating
 125 therewith, of a secondary platen, piston and cylinder operated by the depression of the first-named piston; the last-named piston being provided with a sleeve and a locking
 130 means for causing said sleeve to be locked

fast to the first-named cylinder, or to move in unison with such first-named piston.

6. In a baling-press, the combination with a forcibly-operated bale-forming means, and a platen, piston and cylinder coöperating therewith, of a secondary press having its platen, piston and cylinder, a pipe joining said cylinders provided with a pressure-valve, and a by-pass pipe communicating about
10. said valve and having a stop-cock therein.

7. In a baling-press, the combination with a forcibly-operated bale-forming means, and a platen, piston and cylinder coöperating therewith, of two secondary presses having
15 their cylinders connected by suitable piping to the first-named cylinder, an adjustable

pressure-valve in each piping, and closable connections between the first-named cylinder and each of the other two cylinders.

8. A baling-press composed of three hy- 20 draulic presses having their platens in the same horizontal plane when in their lowest positions, trackways joining the central platen to each of the two others, and a carriage running on said trackways and platens. 25

In testimony that I claim the foregoing invention I have hereunto set my hand this 23d day of September, 1904.

JOHN W. GRAVES.

Witnesses:

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A. B. UPHAM.