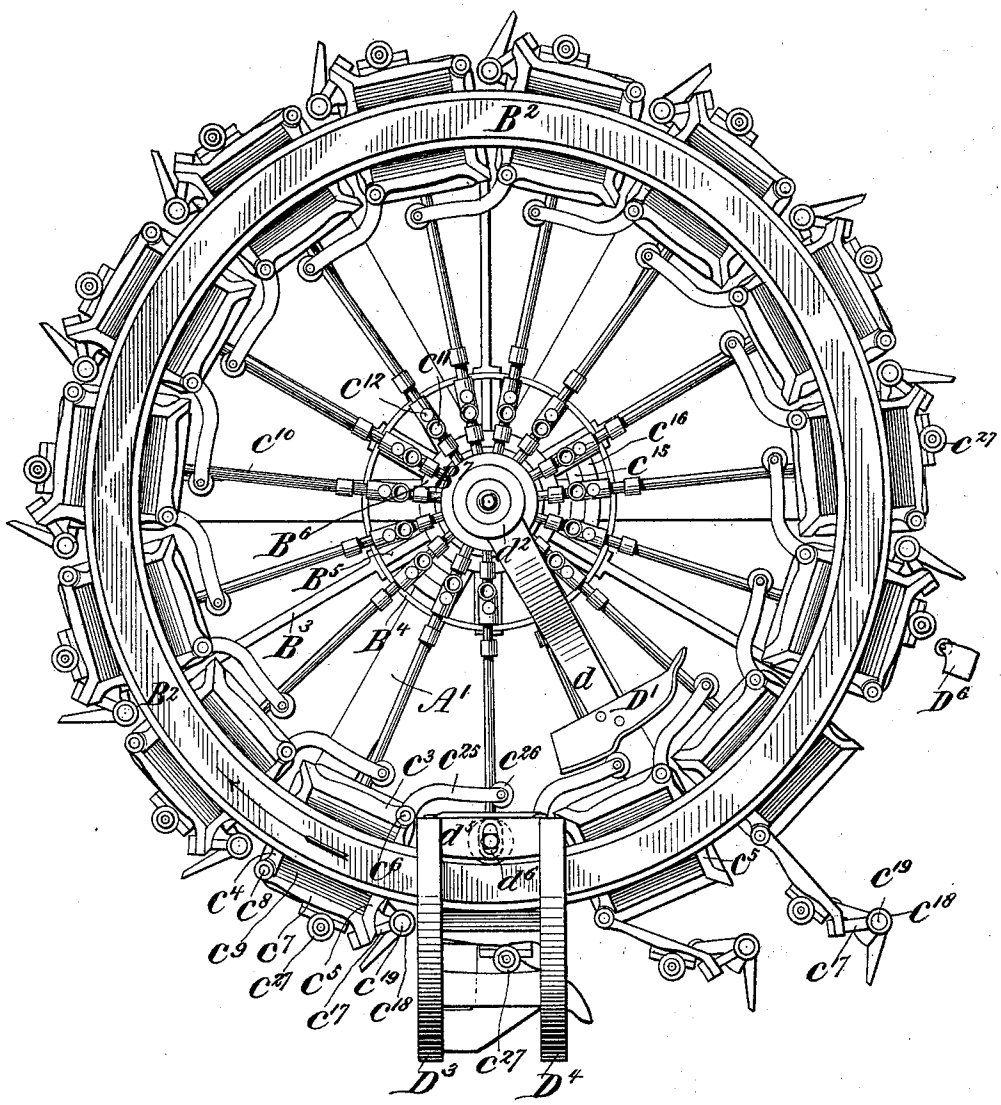
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E. G. TREMAINE & P. LORILLARD, Jr.

PRESSING MACHINE.

No. 606,478. Patented June 28, 1898.

Fig. 1,



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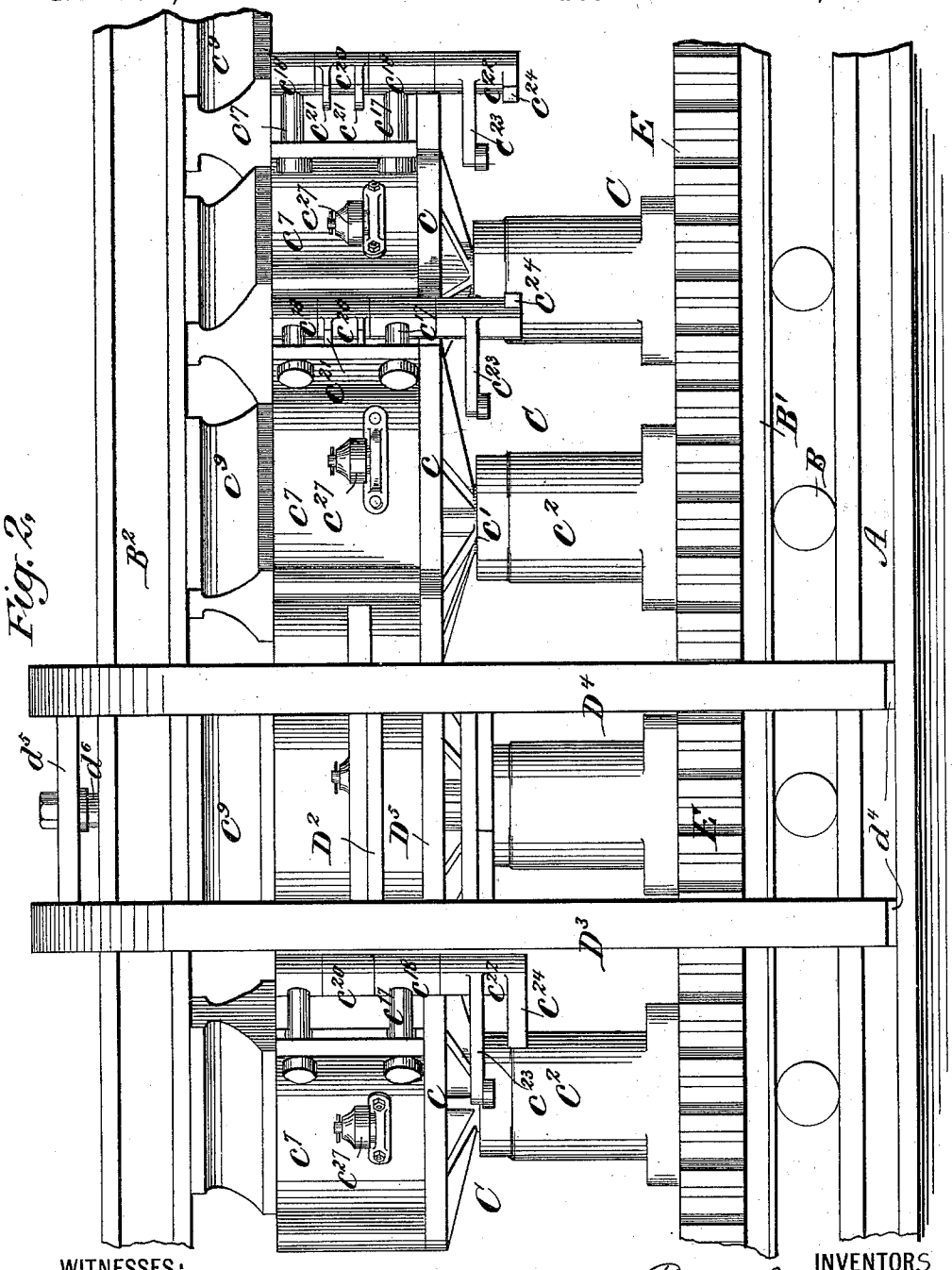
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PRESSING MACHINE.

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Fig. 2.



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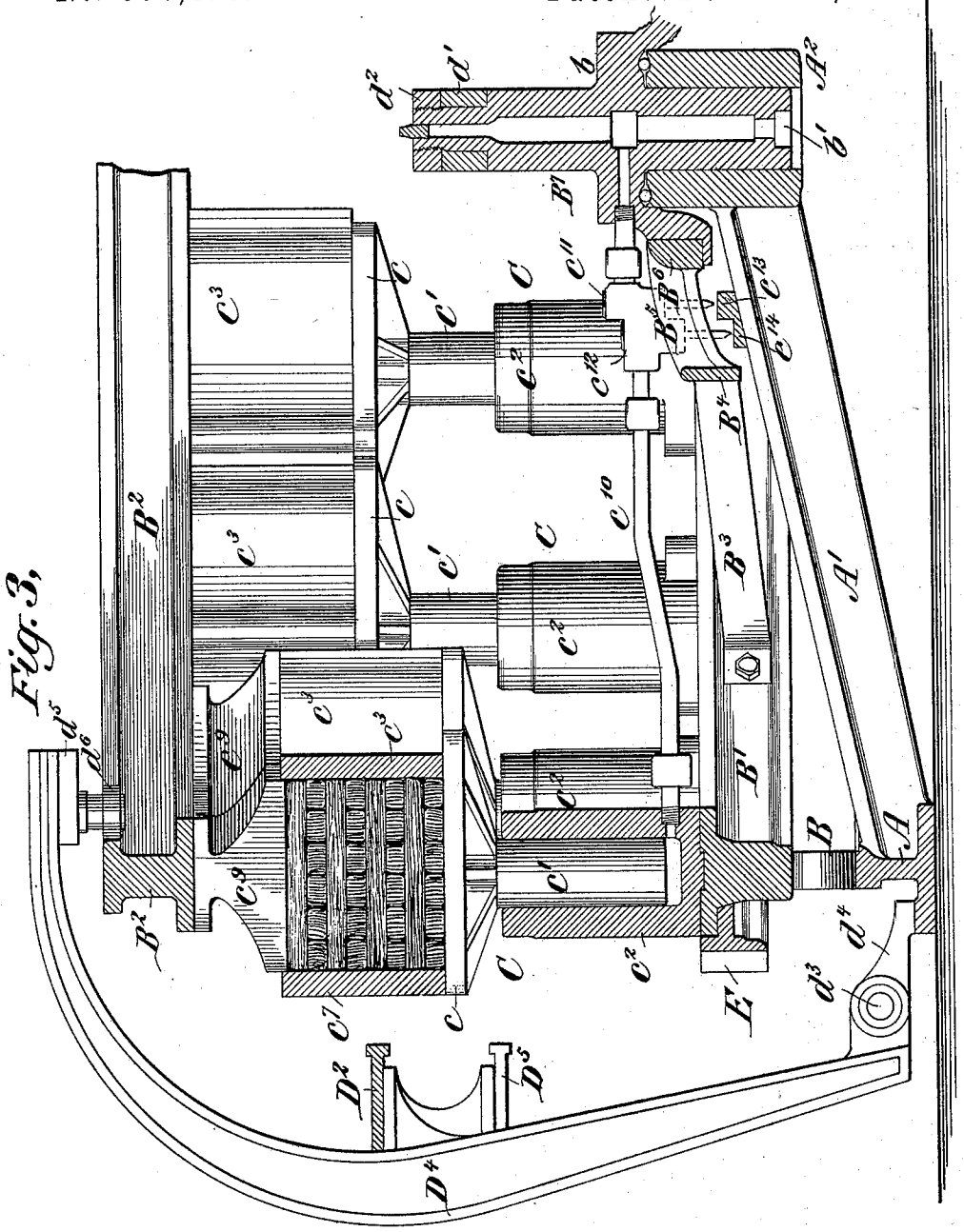
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Fig. 3.



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UNITED STATES PATENT OFFICE

EDWARD G. TREMAINE, OF BROOKLYN, AND PIERRE LORILLARD, JR., OF TUXEDO, NEW YORK, ASSIGNORS TO THE P. LORILLARD COMPANY, OF JERSEY CITY, NEW JERSEY.

PRESSING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 606,478, dated June 28, 1898.

Application filed May 8, 1896. Serial No. 590,661. (No model.)

To all whom it may concern:

Be it known that we, EDWARD G. TREMAINE, of Brooklyn, in the county of Kings, and PIERRE LORILLARD, Jr., of Tuxedo, in the county of Orange, State of New York, have invented a certain new and useful Improvement in Pressing-Machines, of which the following is a specification.

Our improvement relates particularly to pressing-machines for plug-tobacco, but it is applicable to other materials.

A machine embodying the improvement will be described, and then the novel features will be pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan or top view of a pressing-machine embodying the improvement. Fig. 2 is a front view, on an enlarged scale, of a portion of the machine. Fig. 3 is a vertical section on the same scale as Fig. 2 and at the plane of the dotted lines 3 3, Fig. 1.

Similar letters of reference designate corresponding parts in all figures.

Referring to the drawings, A designates a stationary base, made in the form of a circular track. From the inner side of this extend a number of radial arms or spokes A′, which are connected with a hub A^2.

B′ B^2 designate a carriage, here shown as comprising two rings B′ B^2 and connections between them, the latter being omitted from the drawings to avoid unnecessary complication, as they may be of any desirable form—as, for example, ordinary tie-rods. The ring B′ rests upon rollers B, which are supported upon the top of the base-piece A. From the ring B′ extend arms or spokes B^3 to a ring B^4. This ring B^4 is connected by a number of radial arms B^5 with a ring B^6. The latter is fastened to a hub B^7, which intermediate of its outer ends is provided with a shoulder *b*, and below this shoulder fits within the hub A^2 of the stationary base A. Preferably ball-bearings will be used between the horizontal surfaces, where the weight of the carriage B′ B^2 and its appurtenances is more or less supported.

Intermediate the two rings B′ B^2 and forming a part of the carriage which comprises these rings are a number of presses C. These presses may be of any desirable number. As here shown, there are sixteen of them. Each of these presses comprises a box having a bottom *c*, which is attached to the plunger *c′* of a hydraulic ram having its cylinder c^2 mounted upon the ring B′. From the bottom *c* extends upwardly a back c^3, which may be rigidly affixed to the bottom *c*, and a side c^4, which may also be rigidly affixed to the bottom *c*. Besides there is another side c^5, which is hinged at the rear edge by means of a hinge c^6 to the back c^3, and a front c^7, which is connected by a hinge c^6 with the back c^3. The front c^7 is hinged at c^8 to the side c^4, and the front and the side c^5 are intended to be opened to facilitate the introduction and removal of articles which are to be pressed. Generally it will be sufficient to provide for a very slight opening of the side c^5 merely for relieving pressure. The top c^9 of each box is shown as constructed to extend downwardly within its front c^7, back c^3, and sides c^4 c^5, and it is fastened to the under side of the ring B^2.

Liquid is supplied through a number of radial pipes c^{10} to the cylinders c^2 of the hydraulic rams beneath the plungers *c′*. The hub B^7 of the carriage B′ B^2 is made hollow or provided with a chamber *b′*, through which liquid may be supplied to the pipes c^{10}. As here shown, the liquid may enter from the bottom of the hub and be supplied from any suitable source. Combined with each of the pipes c^{10} are inlet and outlet valves c^{11} c^{12}, having downwardly-projecting stems which coact with stationary cams c^{13} c^{14}, affixed to that one of the arms or spokes A′ of the stationary base which is just to the left of the front of the machine. Similar cams c^{15} c^{16} are arranged upon another of these arms or spokes.

As shown, the carriage rotates to the left or, in other words, as indicated by the arrow in Fig. 1. After each of the presses has passed to the left of the front of the machine its valves c^{11} c^{12} will be acted upon by the cams c^{13} c^{14} so as to close the outlet-valve and open the inlet-valve, thus allowing liquid to pass to the ram and to force up the bottom, sides, front, and back of the box relatively to the stationary top. After the movement of the carriage shall have carried the inlet-valve be-

yond its cam the latter will close and retain the liquid in the ram-cylinder. Thus the pressure will be maintained until the travel of the carriage has brought the valve c^{11} c^{12} of that ram over the cams c^{15} c^{16}, whereupon the outlet-valve will be opened, the inlet-valve remaining closed.

Each of the boxes has its hinged parts locked and unlocked automatically. As here shown, the front c^7 of each box has rigidly affixed to its outer edge two horizontally-extending bars c^{17}, terminating at the outer ends in collars c^{18}, forming bearings for a vertical rod c^{19}. Intermediate of the collars c^{18} this vertical rod c^{19} has affixed to it a sleeve c^{20}, which is provided with locking-cams c^{21}, and below the lower collar c^{18} the rod c^{19} has affixed to it a sleeve c^{22}, which is provided with two fingers c^{23} c^{24}.

Assuming that each press-box has been opened and supplied with material to be pressed, it will when carried past the front of the machine have its movable front c^7 and side c^5 closed and fastened.

D′ designates a cam consisting of a stationary piece fastened to an arm d, extending from a collar d', which is fitted loosely upon the upper part of the hub B^7 and retained in place by a nut d^2, which engages with a screw-thread upon the upper end of the hub. The arm d, and hence the cam D′, will be held against movement in any suitable manner—as, for instance, by a rod extending upwardly from some overhead part. The side c^5 of each press-box has rigidly affixed to it an arm c^{25}, that preferably terminates with an antifriction-roller c^{26}. When the side c^5 is open, its arm c^{25} will be moved inward or toward the hubs A^2 B^7. When it contacts with the cam D′, the side c^5 will be closed and retained so until after the closing of the front c^7. D^2 is another stationary cam, this being affixed to two standards D^3 D^4, extending upwardly from the base-piece A. At the lower ends they are connected by hinged pins d^3, connected with brackets d^4, which are secured to the base-piece A. At the upper ends these standards D^3 D^4 are connected together by a cross-piece d^5, which is provided with a roller d^6, bearing against the inside of the upper part of the ring B^2 of the carriage B′ B. Preferably this roller will have an adjustable connection with the cross-piece d^5, so as to provide for properly positioning the standards D^3 D^4 and the appurtenances thereof. On the outside of the front c^7 of each press-box is an antifriction-roller c^{27}, which will come in contact with the cam D^2, and thereby cause the closing of said front c^7.

D^5 is a stationary cam affixed to the standards D^3 D^4 in position to coact with the fingers c^{23} of the press-boxes or, preferably, with antifriction-rollers at the ends of the fingers. Thus each finger c^{23} will be moved inward or toward the hubs A^2 B^7, so as to cause the locking-cams c^{21} to engage inward of the outwardly-bent forward edge of the side c^5. The front and movable side of each press-box after having thus been closed and locked will remain closed and locked during the application of pressure by the ram belonging to that box and until after the relaxation of such pressure is caused by the cams c^{15} c^{16}.

D^6 designates a stationary trip which may be mounted upon a standard fastened to the fixed base-piece of the machine or to the floor of the building in which the machine is arranged. When the arm c^{24} of any press comes in contact with the trip D^6, the rod c^{19} will be oscillated so as to cause the locking-cams c^{21} to move beyond the movable side c^5 of the corresponding press-box, whereupon the pressure of the material within the box will slightly open that side of the box and also the front. The attendant who supplies and removes material pulls the front open when necessary.

Any suitable means may be employed for imparting rotary motion to the carriage B′ B^2. In the present instance we have shown a gear-ring E, affixed to the ring B′ and adapted to be driven by a pinion.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination of a movable carriage, a number of presses each comprising a hydraulic ram supported by said carriage, inlet and outlet valves for each ram, and stationary means in the path of the movable carriage for automatically opening and closing the valves of such rams at predetermined points as the presses are moved along, substantially as specified.

2. The combination of a movable carriage, comprising superposed rings B′, B^2 and a central hub, a number of presses intermediate said rings and comprising hydraulic rams, a number of radial pipes extending from said hub to the rams, valves controlling said radial pipes, and stationary means for automatically operating said valves, substantially as specified.

3. The combination of a movable carriage, a number of presses supported by said carriage, and each comprising stationary sides, and doors or movable sides, and means carried by the presses for locking said doors or movable sides in closed position, substantially as specified.

4. The combination of a movable carriage, a number of presses supported by said carriage, and each comprising a platen, stationary sides thereon, and doors or movable sides, and means carried by the presses and brought into operation by the movement of the carriage for locking said doors or movable sides in closed position, substantially as specified.

5. The combination of a movable carriage, a number of presses supported by said carriage, and each comprising a platen, stationary sides thereon, and doors or movable sides hinged to the stationary sides, and means on the doors for locking them together, and stationary devices in position to successively

secure and release said locking means as the presses are moved along, substantially as specified.

6. The combination of a movable carriage, a number of presses supported thereby and each comprising a plunger and platen, two stationary sides at right angles to each other on the platen, a movable side and door hinged respectively to said stationary sides, means for locking said movable side and door together, and stationary devices in position to successively secure and release said locking means as the presses are moved along, substantially as specified.

7. The combination of a movable carriage, a number of presses supported by said carriage, doors or movable sides for said presses, means comprising locking-cams, an oscillating rod, fingers extending from said rod, and stationary cams for locking and unlocking said doors or movable sides, substantially as specified.

8. The combination of a movable carriage, a number of presses supported thereby and each having a swinging front or door and locking means therefor, a frame adjacent to the carriage, cams on said frame arranged to successively close and lock said doors as the presses are moved along, substantially as specified.

9. The combination of a movable carriage, a number of presses supported thereby and each having a horizontally-swinging front or door, and locking means therefor, an upright frame adjacent to the carriage, cams on said frame in line to close and lock said doors, and a cam for releasing the doors as the presses are moved along, substantially as specified.

10. The combination of a movable carriage comprising superposed rings, and a central hub, a series of presses located intermediate of said rings and each having a swinging door and locking means therefor, an upright frame pivoted at its lower end and engaging the upper ring at its opposite end, and cams on said frame in line to successively close and lock said doors as the presses are moved along, substantially as specified.

11. The combination of a movable carriage comprising superposed rings and a central hub, a series of presses located intermediate of said rings and each having a horizontally-swinging door and locking means therefor, an upright frame pivoted at its lower end and having an adjustable bearing at its opposite end engaging the upper ring of the carriage, and cams on said frame arranged to close and lock said doors as the presses are moved along, substantially as specified.

12. The combination with a carriage having superposed rings and a central hub, of a series of presses supported on the lower ring and each comprising a hydraulic ram, and suitable inlet and outlet pipes and valves therefor, and stationary tops for the presses carried by the upper ring, substantially as specified.

13. The combination with a rotating carriage, of a series of presses thereon, each comprising a hydraulic ram, and suitable inlet and outlet pipes therefor, valves in said pipes having elongated stems, and stationary cams in line to be engaged by said stems for automatically operating said valves as the carriage rotates, substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

EDWARD G. TREMAINE.
PIERRE LORILLARD, JR.

Witnesses:
C. A. LEONARD,
E. W. SOMERS.