

No. 706,622.

Patented Aug. 12, 1902.

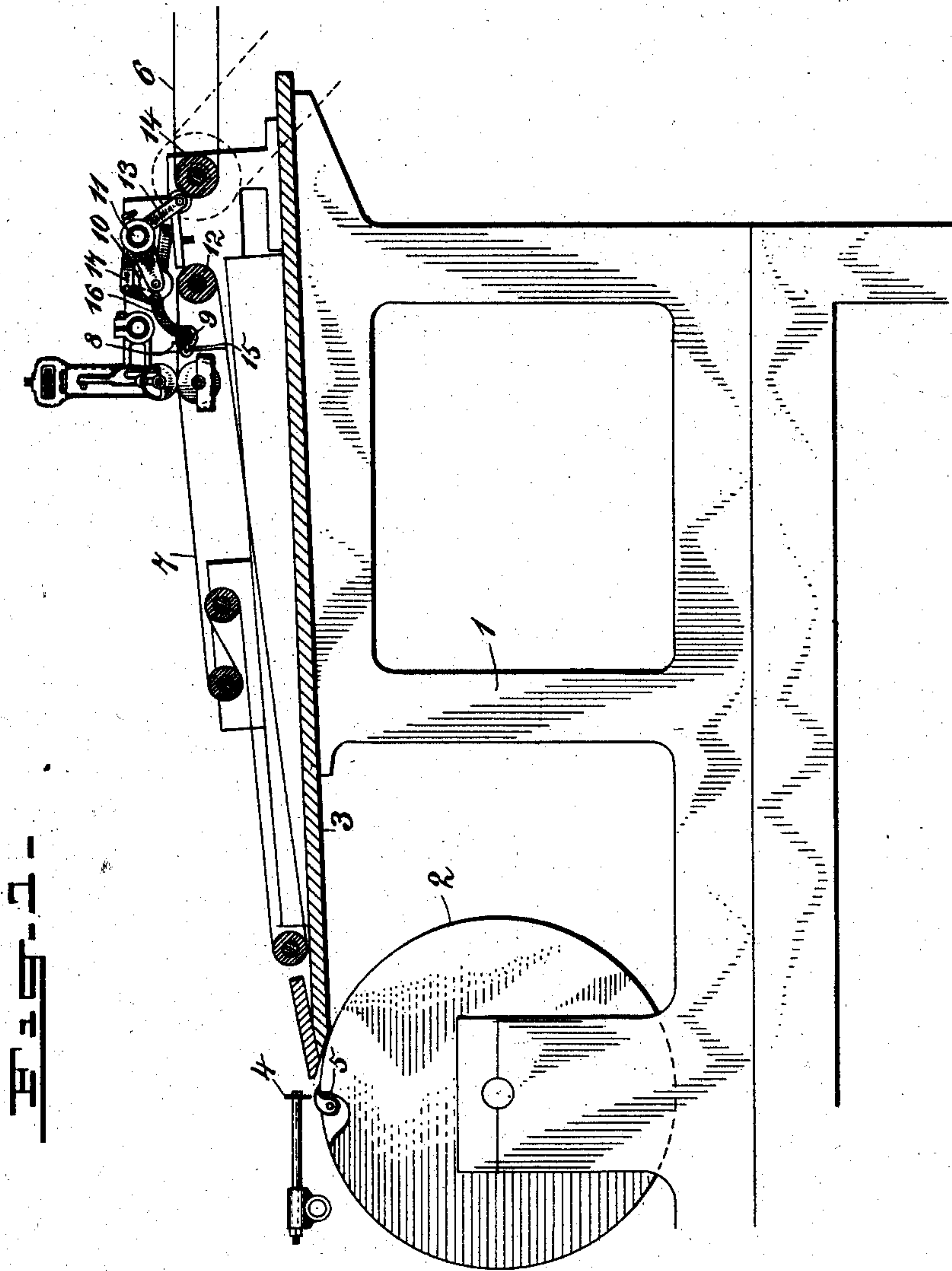
W. C. WILLIAMS.

CONTROLLING MECHANISM FOR PRINTING PRESSES.

(Application filed Sept. 3, 1901.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES:

John O. Kempner
Edwin Seger.

INVENTOR

William B Williams

BY

BY *J. H. Freeman*
ATTORNEY

ATTORNEY

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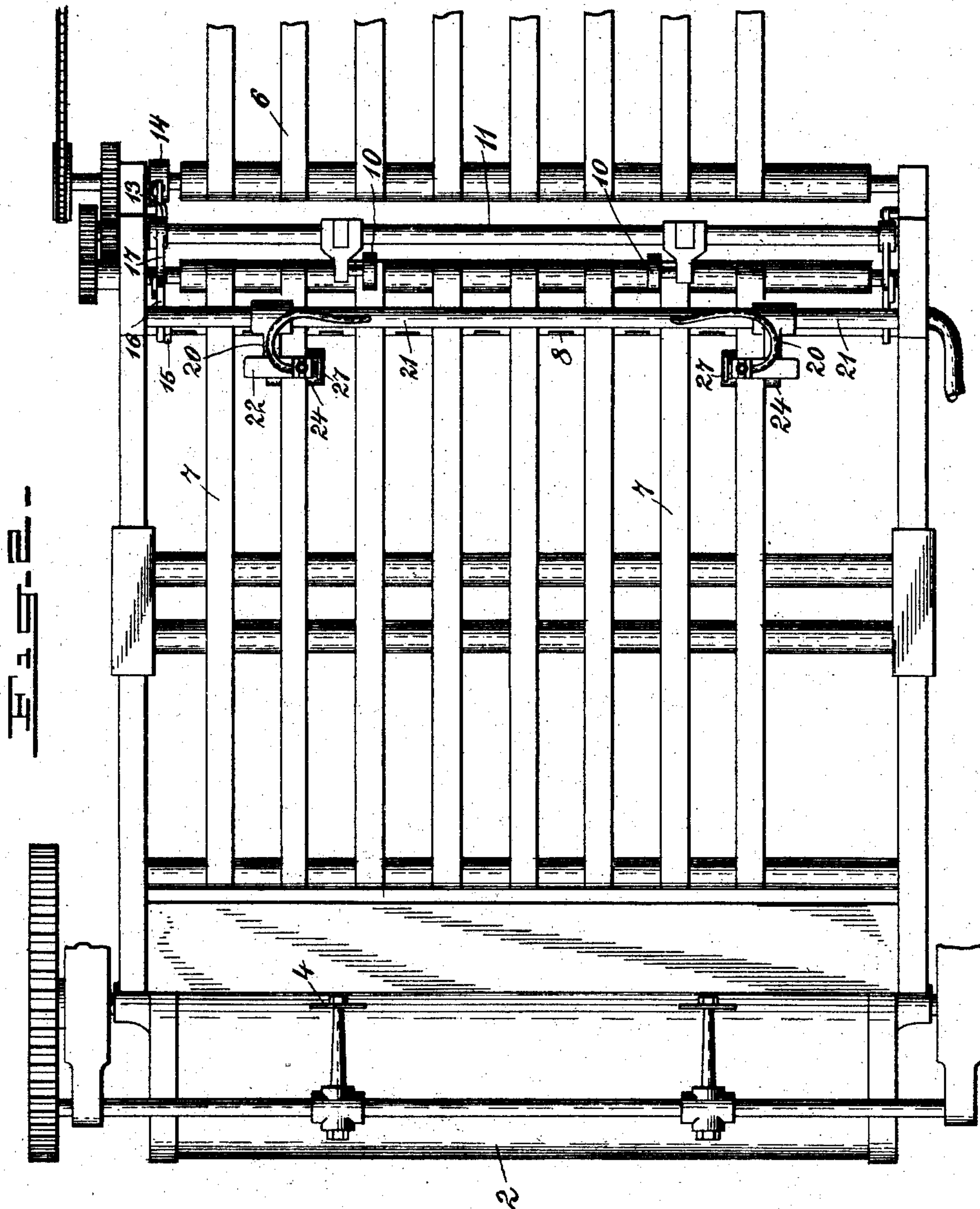
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WITNESSES:

John O. Kemple
Edwin Leges

INVENTOR

William C. Williams

BY

J. H. Freeman
ATTORNEY

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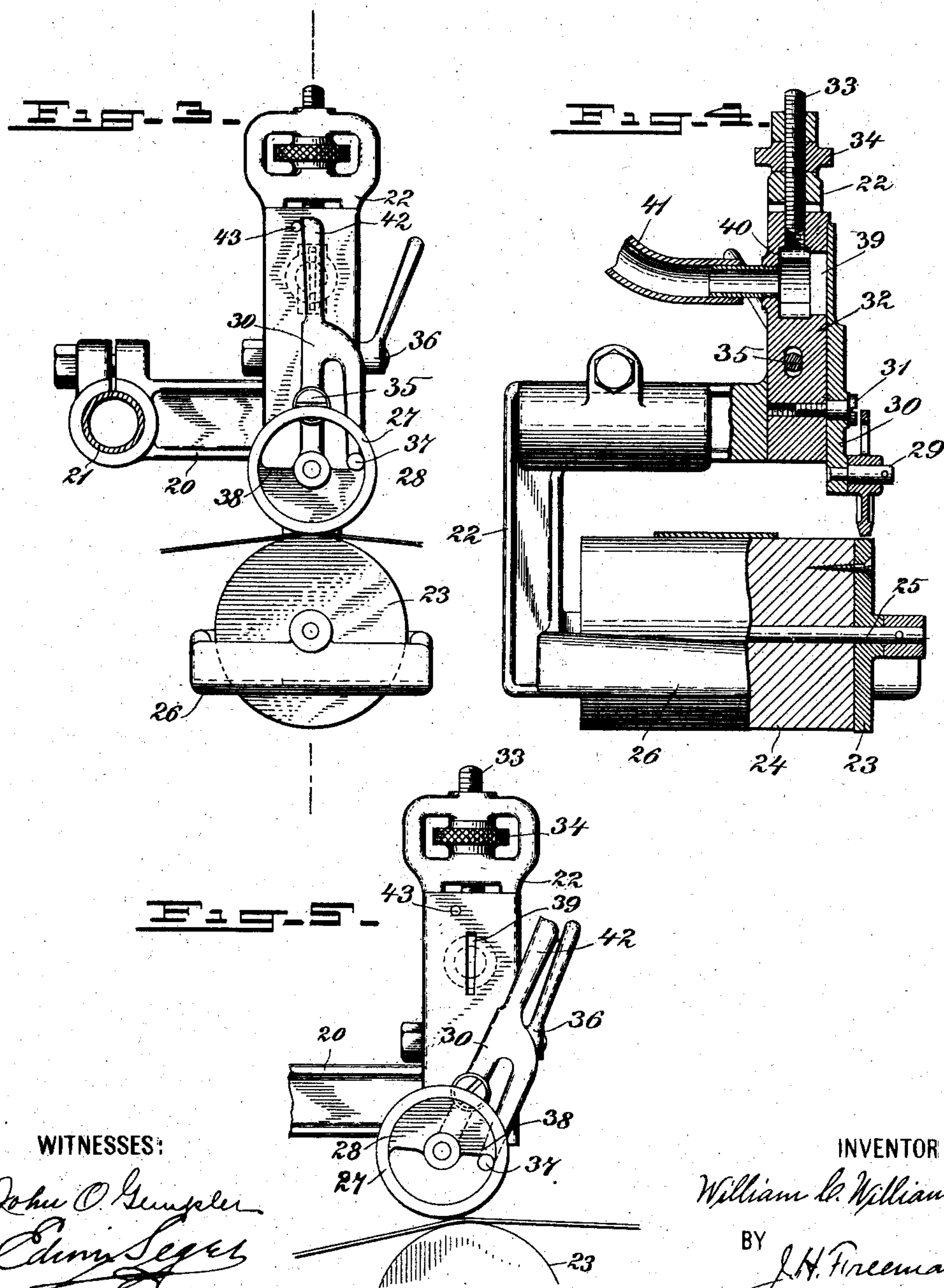
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(No Model.)

3 Sheets—Sheet 3.



UNITED STATES PATENT OFFICE.

WILLIAM C. WILLIAMS, OF BROOKLYN, NEW YORK, ASSIGNOR TO WILLIAM M. KLEIN, OF CHICAGO, ILLINOIS.

CONTROLLING MECHANISM FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 706,622, dated August 12, 1902.

Application filed September 3, 1901. Serial No. 74,105. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. WILLIAMS, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Controlling Mechanism for Printing-Presses, of which the following is a specification.

My invention relates to mechanism for feeding paper or similar material to printing-presses or other machines, and more particularly to a device which is rendered operative by variations in the material being fed for controlling the operation of the press or other machine or of some part thereof.

While my invention may be embodied in mechanism designed for various purposes—as for use in connection with material in web or in sheet form, or to be rendered operative by variations in the thickness of the material, or by its presence or absence, or by the presence or absence of more than one thickness of the material, or for the purpose of stopping or starting the entire machine, or of putting some part of it into or out of operative relation—it is more particularly addressed to the provision of a mechanism adapted for use in connection with machines which separate sheets of paper from a pile and feed them to a printing-press, folding-machine, or the like, the purpose being to detect the presence of more than one sheet and to render a controlling mechanism operative for stopping the machine and also for “throwing off” the impression-cylinder in the case of a printing-press.

It is among the objects of my invention to provide a mechanism which is positive and reliable in operation and which is simple and cheap in construction and not apt to get out of order; also, to provide a device of the character referred to which will stop the machine promptly and always at the same period of its operation; also, one which will perform its functions without destroying or misplacing the paper passing to or through the machine; also, one which is particularly adapted for use in connection with fluid-operated controlling mechanism, and one which when it has performed its functions may be reset and the machine started again with a mini-

mum of delay. These and other objects of my invention will more clearly appear from the following description.

My invention consists in the novel parts, improvements, and combinations herein shown and described.

The accompanying drawings, which are referred to herein and form a part hereof, illustrate one embodiment of my invention and serve, in connection with the description herein, to explain the principles of the invention and the best mode contemplated by me of applying those principles.

Of the drawings, Figure 1 is a sectional view illustrating my invention as applied to an ordinary form of printing-press. Fig. 2 is a plan view of the same. Fig. 3 is a side view of the sheet-operated mechanism detached. Fig. 4 is a view of the same, partly in section, taken on the line 4 4, Fig. 3, and partly in elevation as seen from the left of Fig. 3; and Fig. 5 is a view like that in Fig. 3, but showing the parts in a different position.

Like reference-numerals refer to like parts throughout the several views.

Referring now to the drawings in detail, 1 represents the frame of an ordinary bed-and-cylinder printing-press.

2 represents the impression-cylinder, 3 the feed-board, and 4 the front gages, from which the sheets are taken by the grippers 5 on the impression-cylinder.

6 represents a set of tapes which convey the sheets from any suitable sheet-separating mechanism and deliver them to a second set of tapes 7, by which the sheets are presented to the front gages 4. Before the sheets are delivered to the tapes 7 they are preferably stopped temporarily and started again at the proper time to be presented by the tapes 7 to the front gages 4 at the desired instant. This preliminary timing mechanism may be of any suitable construction. That shown comprises a set of front gages 8, mounted on a rock-shaft 9, by which they may be moved into or out of the path of the sheets, and a pair of drop-rollers 10, mounted on a rock-shaft 11, by which they may be moved into or out of contact with the roller 12, over which the tapes 7 are passed, the rock-shaft being so operated that when the gages 8 are moved

across the path of the paper the rollers 10 are moved out of contact with roller 12 and when the gages are moved out of the path of the paper rollers 10 are moved into contact with the paper, so as to positively forward it with the tapes 7. As shown, shaft 11 is operated by an arm 13, which is adapted to be engaged by the cam 14. The rock-shaft 9 is provided with an arm 15, to which is connected the free end of a lever 16, which is fulcrumed at the opposite end to the frame and is connected at an intermediate point to an arm 17, carried by the rock-shaft 11.

In accordance with my invention the sheet-operated devices by which the controlling mechanism of the press is rendered operative are associated with the preliminary timing devices just described, said sheet-operating devices being located one at each side of the machine just in advance of the gages 8. By reason of this construction the operation of the controlling mechanism of the press is accurately timed, so that the press will invariably be stopped at a certain period in its operation.

In accordance with my invention the sheet-operated devices comprise a suitable sheet-supporting or "backing" member, a contact member movably mounted adjacent to said backing member, said contact member having a bearing-surface arranged to be gripped by an abnormal thickness of the material passing through the device, and suitable connections between the contact member and the controlling mechanism of the press. According to certain features of my invention the contact member is in the form of an unbalanced wheel, which is mounted on a movable support, so that when the controlling mechanism has been operated the contact member will be released from the material by which it was driven, thus allowing the material to be removed and replaced without being destroyed and without deranging the mechanism.

In accordance with the construction shown the sheet-operated devices consist of a frame 20, which may be adjustably mounted on a tube 21, carried by the frame in which the timing devices are mounted. This frame is provided with an open-sided portion 22, which is arranged parallel with the tube 21 and in such position that it may be made to embrace the edge of the path of the paper at one side of the press. As shown, the backing member consists of a disk or roller 23, which, together with a driving-roller 24, is journaled on a shaft 25, mounted at its opposite ends in a yoke 26, which forms a part of the frame 22. The contact member comprises a wheel 27, having a heavy portion 28 and a circumferentially-continuous bearing-surface adapted to come in contact with the paper passing over the backing member 23. As shown, the wheel 27 is journaled on a stud 29, carried by a lever 30, which in turn is pivoted on a stud 31, carried by a block 32,

adjustably mounted in a vertical recess of the frame-section 22.

For the purpose of adjusting the block 32 so as to bring the contact-wheel 27 into proper relation with the backing-wheel 23 the block 32 is provided at its upper end with a threaded stud 33, which passes through the upper end of the frame 22 and is engaged by an adjusting-nut 34, which is confined in a suitable recess in said frame. A clamping-bolt 35 is provided to firmly hold the block 32 in its adjusted position, said bolt passing through the frame 22 and a slotted opening in the block 32 and being provided with a clamp-nut 36.

In order that the lever 30 may be rocked so as to release the contact-wheel 27 from the material, a stop 37 is arranged to be engaged by a shoulder 38 on the wheel, so as to limit the rotation of the latter and cause it to be carried along with the material when it is gripped thereby. In this way the lever 30 will be rocked on its pivot, so as to release the contact-wheel from the paper, as clearly shown in Fig. 5. The stop 37 is preferably mounted on the lever 30, as in this way all the force applied to the contact-wheel is utilized for turning the lever 30 on its pivot. As shown, moreover, the stop 37 is so arranged in a recess in the wheel that the latter turns quite a distance before the shoulder 38 comes in contact with stop 37, the impact of the wheel thus produced acting in addition to the driving force of the material to move the lever 30 in such direction as to release the wheel from pressure contact with the material. Any suitable means may be provided to hold the contact-wheel in its normal position. Preferably, however, this is accomplished by the weighted side 28, as by reason of this construction the wheel is kept in a continual state of oscillation. This not only prevents the wheel from sticking on its pivot, but it constitutes a reliable and accurate means of determining when the wheel is in proper adjustment.

The impelling force of the sheets on the contact member may be increased by nurling the surface of the backing-roller 23 and passing one of the driving-tapes 7 over the roller 24, the roller 23 being thus caused to positively drive the sheets, and with them the contact device when it is gripped by the sheets.

The contact-wheel may be connected with the controlling mechanism of the press in any suitable way. In accordance with the preferred construction the press is provided with fluid-operated controlling mechanism, and the sheet-operated devices are provided with a controlling device for the operating fluid. To this end the block 32 is provided with a port 39, communicating with the chamber 40, which in turn is connected, by means of a flexible pipe 31, with the tube 21, which communicates with and forms a part of the controlling mechanism of the press. The

port 39 is normally closed by valve 42, which for convenience is mounted on the lever 30, a stop 43 being provided to fix the normal position of the parts. This construction is particularly adapted for use in connection with press-controlling mechanism which is normally withheld from operation by means of a partial vacuum the destruction of which permits the mechanism to perform its function. In this case the opening of port 39 permits air to enter pipe 21 and destroy the vacuum therein. Thus the valve 42 constitutes a controlling device for the operating fluid of the controlling mechanism of the press.

My invention in its broader aspects is not limited to the precise construction shown, nor to the exact construction by which it has been or may be carried into effect, as many changes other than those herein suggested may be made in such construction without departing from the main principles of my invention or sacrificing its chief advantages.

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

1. In a device of the character specified, the combination with a suitable backing member, of a contact member journaled adjacent to said backing member, said contact member having a bearing-surface arranged to be gripped by an abnormal thickness of the material passing through the device, a suitable controlling device constructed to be operated by said contact member, and means whereby the contact member is released from the material after operating the controlling device.

2. In a device of the character specified, the combination with a suitable backing member, of a contact member journaled adjacent to said backing member, said contact member having a bearing-surface arranged to be gripped by an abnormal thickness of the material passing through the device, a suitable controlling device constructed to be operated by said contact member, means for normally withholding said contact member from engagement with said controlling device, and means whereby the contact member is released from the material after engaging the controlling device.

3. In a device of the character specified, the combination with a suitable backing member, of an unbalanced contact member journaled adjacent to said backing member, said contact member having a bearing-surface arranged to be gripped by an abnormal thickness of the material passing through the device, a suitable controlling device constructed to be operated by said contact member, and means whereby the contact member is released from the material after operating the controlling device.

4. In a device of the character specified, the combination with a suitable backing member, of a support movably mounted adjacent to

said backing member, a contact member journaled on said support, said contact member having a bearing-surface arranged to be gripped by an abnormal thickness of the material passing through the device, and a controlling device constructed to be operated by said contact member, the construction being such that the contact member is released from the material after operating the controlling device.

5. In a device of the character specified, the combination with a suitable backing member, of a support movably mounted adjacent to said backing member, a contact member journaled on said support, said contact member having a bearing-surface arranged to be gripped by an abnormal thickness of the material passing through the device, a controlling device constructed to be operated by said contact member, and means for limiting the movement of the contact member whereby the support is operated to release the contact member from the material after the controlling device is operated.

6. In a device of the character specified, the combination with a suitable backing member, of a support movably mounted adjacent to said backing member, a contact member journaled on said support, said contact member having a bearing-surface arranged to be gripped by an abnormal thickness of the material passing through the device, a controlling device connected to said support, and a stop for limiting the movement of the contact member whereby the support is caused to operate the controlling device and to release the contact member from the material.

7. In a device of the character specified, the combination with a backing-roller, of a lever pivoted adjacent to said roller, an unbalanced contact-wheel journaled on said lever, said wheel having a bearing-surface arranged to be gripped by an abnormal thickness of the material passing through the device, a controlling device connected to said lever, and a stop carried by said lever for limiting the movement of the contact-wheel whereby said lever is caused to operate the controlling device and to release the contact-wheel from the material.

8. In a device of the character specified, the combination with a suitable backing member, of a contact member journaled adjacent to said backing member, said contact member having a bearing-surface arranged to be gripped by an abnormal thickness of the material passing through the device, a fluid-operated controlling mechanism, a device for controlling the operating fluid constructed to be operated by said contact member, and means whereby the contact member is released from the material after operating the controlling device.

9. In a device of the character specified, the combination with a backing-roller, of a lever pivoted adjacent to said roller, an unbalanced contact-wheel journaled on said lever, said

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 wheel having a bearing-surface arranged to be gripped by an abnormal thickness of the material passing through the device, a fluid-operated controlling mechanism, a valve for
 5 controlling the operating fluid connected to said lever, and a stop carried by said lever for limiting the movement of the contact-wheel whereby said lever is caused to operate the controlling device and to release the
 10 contact-wheel from the material.

10. In a device of the character specified, the combination with a fluid-operated controlling mechanism, of a valve for controlling the operating fluid, and means for operating said
 15 valve comprising a suitable backing member, a contact member movably mounted adjacent to said backing member, said contact member having a bearing-surface arranged to be gripped by an abnormal thickness of the material passing through the device and means
 20 whereby the contact member is released from the material after the valve has been operated.

11. In a device for feeding sheets of paper or similar material to a printing-press or
 25 other machine having front gages the combination with means for conveying the sheet to the machine, of means independent of the machine for timing the passage of the sheets to the machine, and a sheet-operated device
 30 for controlling the machine located between said timing means and the sheets when the latter are in position against the front gages of the machine.

12. In a device for feeding sheets of paper or similar material to a printing-press or
 35 other machine having front gages the combination with means for conveying the sheet to the machine, of means independent of the machine for timing the passage of the sheets to the machine, and a device operated by an
 40 abnormal thickness of material for controlling the machine located between said timing means and the sheets when the latter are in position against the front gages of the machine.
 45

13. In a device for feeding sheets of paper or similar material to a printing-press or other machine having front gages the combination with means for conveying the sheet to the
 50 machine, of means independent of the machine for timing the passage of the sheets to the machine, and a sheet-operated device for controlling the machine located between said timing means and the sheets when the latter are in position against the front gages of the machine, said sheet-operated device consisting of a backing member, and a contact member movably mounted adjacent to said backing member and having a bearing-surface arranged to be gripped by an abnormal thickness of material passing through the device.
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14. In a device for feeding sheets of paper or similar material to a printing-press or other machine the combination with means for con-

veying the sheet to the machine, of means independent of the machine for timing the passage of the sheets to the machine, and a sheet-operated device for controlling the machine located between said timing means and the machine, said sheet-operated device consisting of a backing member, and a contact member movably mounted adjacent to said backing member and having a bearing-surface arranged to be gripped by an abnormal thickness of material passing through the device, and means whereby the contact member is released from the material after the controlling device has been operated.

15. In a device of the character specified, the combination with a fluid-operated controlling mechanism including a tube mounted transversely to the path of the paper in the machine and an arm adjustably mounted on said tube, said arm having a valve-port connected to said tube by a flexible pipe, of a
 80 controlling-valve mounted on said arm, and means rendered operative by an abnormal thickness of material for operating said valve.
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16. In a device of the character specified, the combination with a fluid-operated controlling mechanism including a tube mounted transversely to the path of the paper in the machine and an arm adjustably mounted on said tube, said arm having a valve-port connected to said tube by a flexible pipe, of a
 90 controlling-valve mounted on said arm, and means for operating said valve comprising a suitable backing member and a contact member movably mounted adjacent to said backing member, said contact member having a
 95 bearing-surface arranged to be gripped by an abnormal thickness of the material passing through the device.
 100

17. In a device of the character specified, the combination with a fluid-operated controlling mechanism including a tube mounted transversely to the path of the paper in the machine and an arm adjustably mounted on said tube, said arm having a valve-port connected to said tube by a flexible pipe, of a
 110 controlling-valve mounted on said arm, and means for operating said valve comprising a suitable backing member and a contact member movably mounted adjacent to said backing member, said contact member having a
 115 bearing-surface arranged to be gripped by an abnormal thickness of the material passing through the device, and means whereby the contact member is released from the material after the device has been operated.
 120

Signed at New York city, in the county of New York and State of New York, this 13th day of August, A. D. 1901.

WILLIAM C. WILLIAMS.

Witnesses:

EDWIN SEGER,
 JOHN O. GEMPLER.