

(No Model.)

2 Sheets—Sheet 1.

J. F. McNUTT.
PRINTING PRESS.

No. 597,652.

Patented Jan. 18, 1898.

Fig. 1.

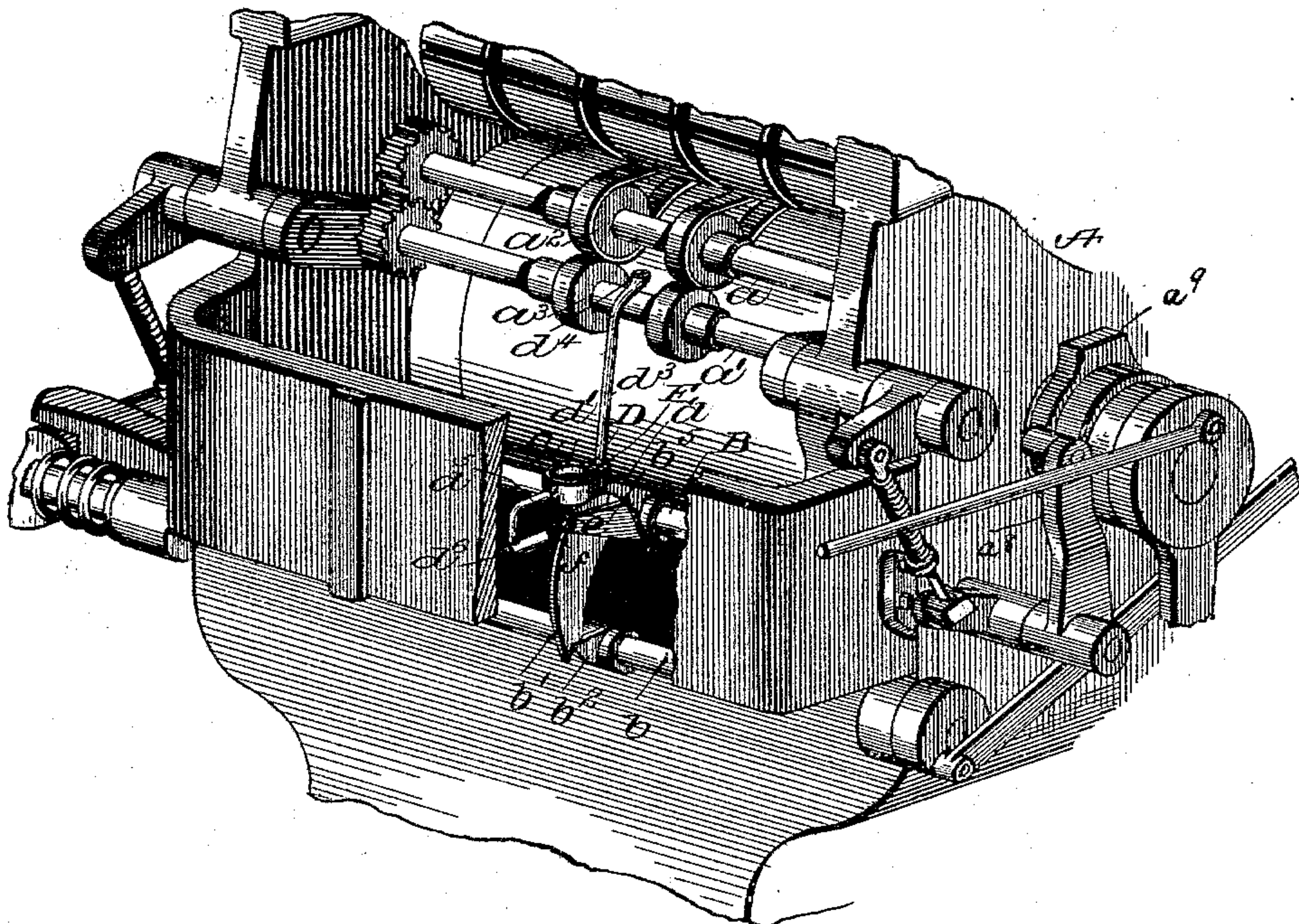
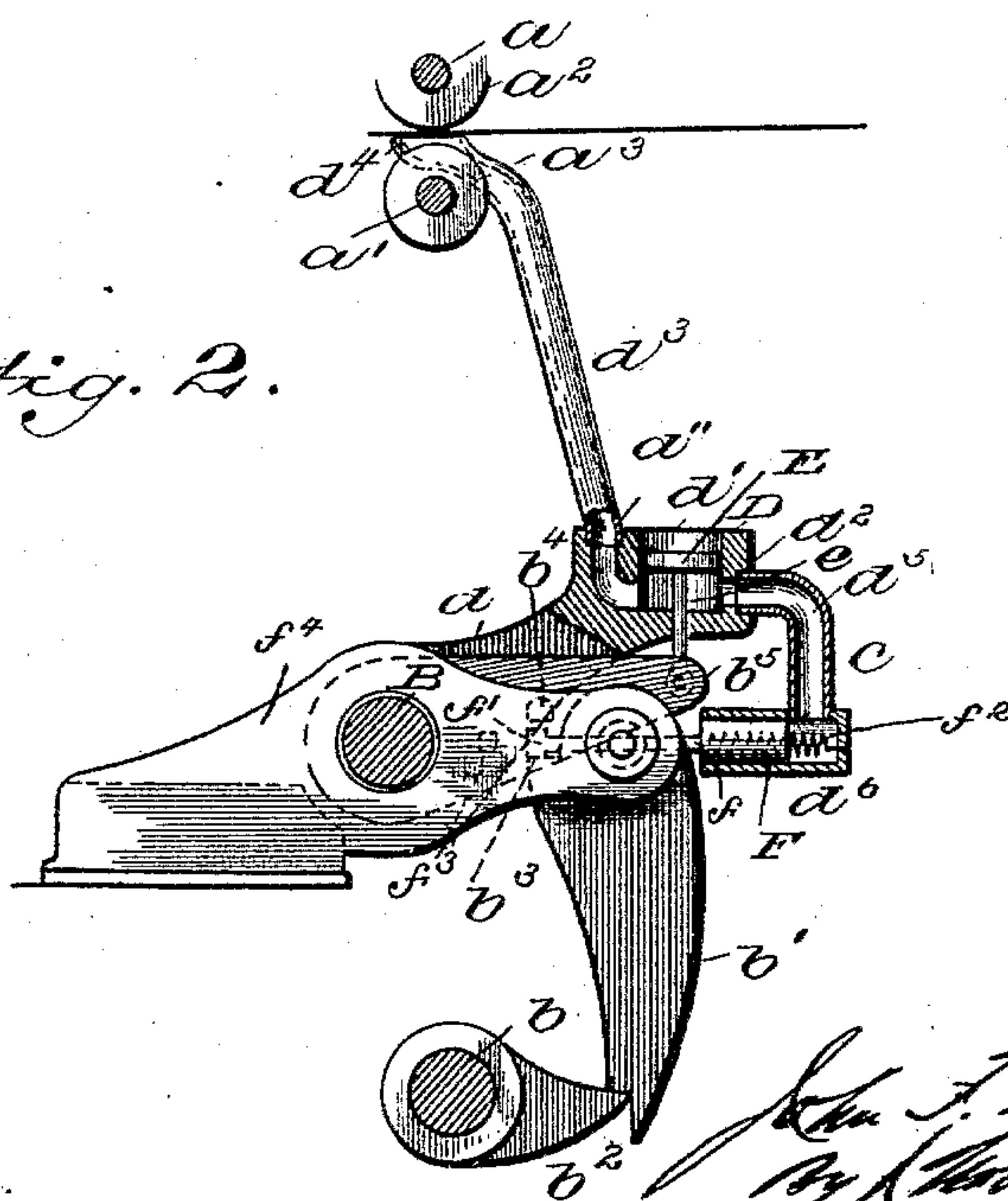


Fig. 2.



Witnesses

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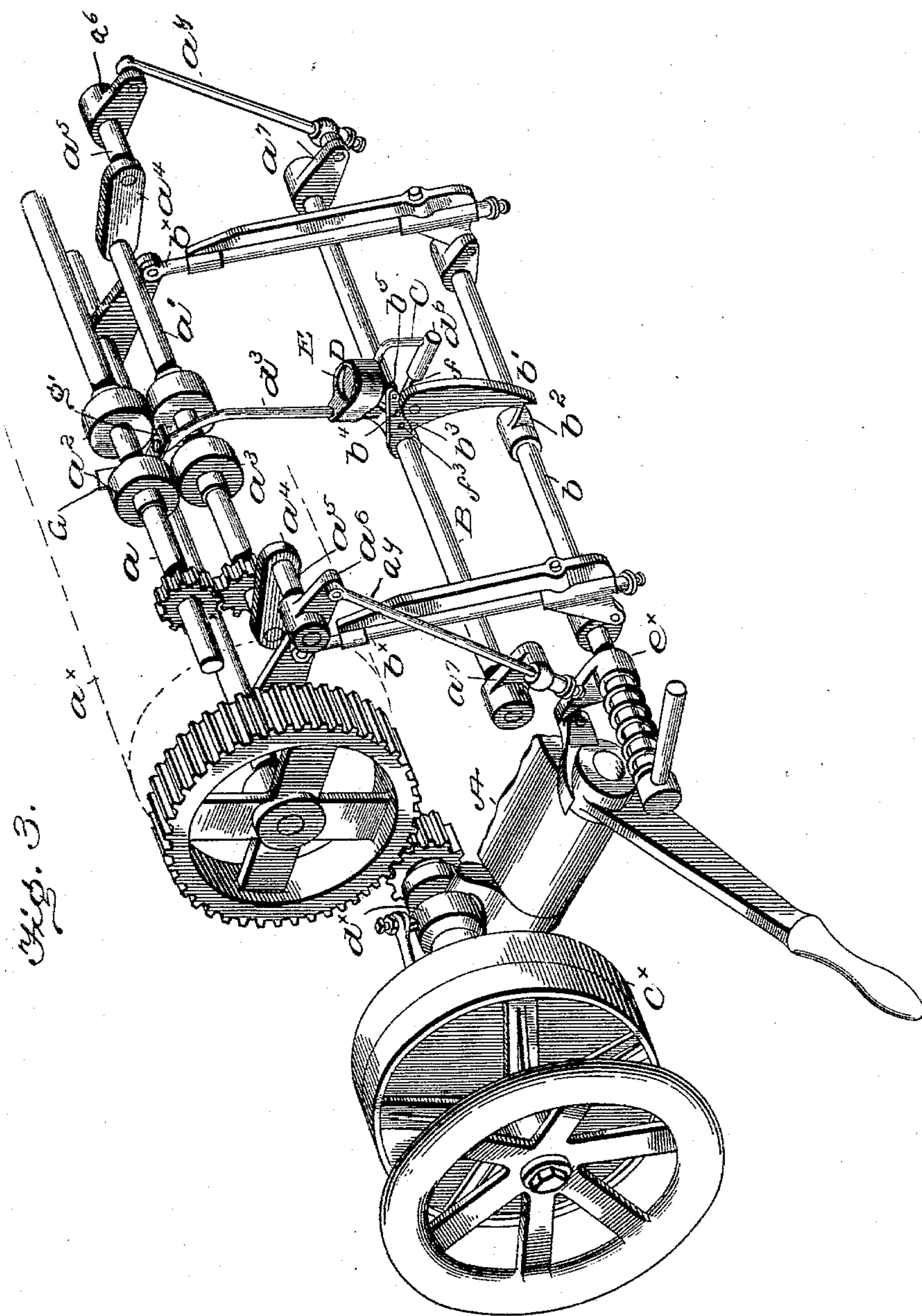
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2 Sheets—Sheet 2.

No. 597,652.

Patented Jan. 18, 1898.



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UNITED STATES PATENT OFFICE.

JOHN F. McNUTT, OF WARREN, OHIO, ASSIGNOR TO THE HARRIS AUTOMATIC PRESS COMPANY, OF NILES, OHIO.

PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 597,652, dated January 18, 1898.

Application filed October 6, 1896. Serial No. 607,987. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. McNUTT, of Warren, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Printing-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.

10 This invention contemplates certain new and useful improvements in throw-off mechanism for printing-presses.

In Letters Patent No. 577,405, granted to Charles G. Harris and myself on February 15 16, 1897, and in a subsequent application by myself, filed September 23, 1896, Serial No. 606,745, were shown certain mechanical means for operating the throw-off or stop mechanism of a printing-press in the event of any interruption or irregularity in the supply of stock to a printing-press. The object of the present invention is to accomplish substantially the same results by a pneumatic attachment. In both of said applications were shown a trip-25 block for normally holding a spring-impelled shaft which controls the throw-off or stop mechanism and an intermittently-operated shaft having an arm or projection movable in line with said trip-block, but not engaging therewith, the space between said arm or projection and said trip-block being filled by a lug which is moved out of the way if the stock is properly fed, but which aids in tripping the block in the event of any irregularity in the feed. In lieu of the mechanical devices shown in said application for effecting this removal of the lug when the stock is properly fed I now propose substituting a pneumatic attachment.

40 The invention will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in perspective of a portion of a printing-press, showing the present improvements. Fig. 2 is an enlarged view of the device with parts in section and others broken away. Fig. 3 is a view illustrating the throw-off and stop mechanism of a printing-press.

50 Referring to the drawings, A designates a portion of a printing-press, and a a' two shafts

or rolls having circumferential enlargements a^2 a^3 , between and by which the stock is fed to the press. The shaft or roll a' is journaled in arms a^4 , secured on rock-shafts a^5 , which 55 have arms a^6 secured thereto, connected by links a^7 to arms a^7 on shaft B, which is periodically operated by the rotation of the impression-cylinder by an arm a^8 in engagement with a cam a^9 . In this way the roll a' is intermittently raised and lowered. Adjacent 60 shaft B is a second spring-impelled shaft b , the operation of which controls the throw-off and stop mechanism, as fully set forth in the before-mentioned Letters Patent and which 65 need only be briefly referred to herein. The impression-cylinder a^x is eccentrically mounted and its bearings are connected by arms b^x to shaft b , the rocking of which will effect the throw-off. The stop mechanism comprises a 70 clutch-pulley C^x , which is under the control of a sliding collar d^x , the operating mechanism of which effects the throw-off when the shaft b is rotated, a short arm e^x on said shaft striking and releasing a latch or holding 75 means forming part of said mechanism. All of this is fully set forth in the above-noted Letters Patent. The shaft b is normally held against the tension of its spring by a pivoted trip-block b' , engaging an arm or projection 80 b^2 , fast on said shaft, and when the latter is so held the impression-cylinder is in operative position and the driving mechanism is free to operate the press. The tendency of the shaft is to throw the press out of opera- 85 tion by allowing the impression-cylinder to lower and cause the driving mechanism to come to a full stop. The upper shouldered end b^3 of this trip-block is in line with the outer end of an arm or projection b^4 of shaft B. 90

C designates the pneumatic attachment by the aid of which the trip-block is operated in the event of any irregularity in the feed to the press. It comprises a casting or cylinder D, supported by a stationary part d of the 95 press-frame, a cylindrical bore d' , open at its top, being formed therein. From the bottom of this bore extend two lateral ports d'' d^2 , a tube d^3 opening into the former and extending upwardly, its curved end being located 100 between the circumferential enlargements of the two feed-rolls. The extreme end d^4 of

this tube is on a horizontal plane in line with the passage of the stock to the press. From the port d^2 leads a downwardly-extended tube d^5 , which opens into and supports a horizontally-disposed cylinder d^6 , open at its rearward end.

E is a vertically-movable piston located in bore d' , its rod e being extended below casting D and pivoted to the outer end of arm or projection b^5 , so that the movement of the latter will cause the piston to move up and down in its cylinder.

F is a horizontally-movable piston located in cylinder d^6 , its rod f being extended outwardly and provided at its free end with a lug or thickened portion f' , designed to normally fill the space between the shoulder b^3 and lug b^4 . To the inner face of the piston is connected one end of a coil-spring f^2 , the other end of which is secured to the closed end of cylinder d^6 , said spring serving to hold lug b^4 in its normal position. A stop f^3 on the side of a stationary arm f^4 (to which the trip-block b' is pivoted) limits the outward movement of piston F and its rod f .

In practice the stock in being fed to the press lies over the upper end of the tube d^3 when it is in position to be fed by and is grasped between the rolls $a a'$. At this time the partial rotation of shaft B lowers the outer end of its arm b^5 , causing the piston E to move downward. This forces air out of the bore d through the lateral ports. If the stock is properly positioned, the free escape of air from the tube d^3 is prevented or retarded, and thus the greater pressure or volume of air passes into the cylinder d^6 , forcing forward the piston F. This throws the lug f' from between the shoulder b^3 and lug b^4 , allowing the arm b^5 to lower without disturbing the trip-block. The piston F is returned to its normal position each time it is moved forward by the spring f^2 . If, however, the stock has not been fed or is not properly positioned and grasped by the feed-rolls, the volume of air will pass out of the tube d^3 , and the piston F will retain its normal position. Hence the lug f' not being removed the downward movement of arm b^5 will act on the trip-block, turning the latter on its pivot and allowing the shaft b to partially rotate, allowing the throw-off mechanism to shift the impression-cylinder and the operative mechanism of the clutch-pulley to bring the press to a full stop.

Where the press is employed for printing cards or other heavy stock, the enlargements of the rolls $a a'$ are sufficient to hold the same over the upper end of tube d^3 , but where light stock is being fed it has been found advantageous to employ an arm G, made of thin spring metal and secured at one end to a suitable support, the lower or free end of said arm being provided with a foot g' , resting slightly on the end of said tube d^3 and having an opening coinciding with the bore thereof. Thus when the stock is improperly

fed to the press the perforation in foot g' will allow of the ready escape of air from said tube, thereby effecting the stopping of the press, as heretofore set forth.

The advantages of the present invention are apparent and will be readily understood by those skilled in the art to which it appertains.

I claim as my invention—

1. In a printing-press having stop and throw-off mechanism, a trip adapted to control the same, an intermittently-operated shaft having an arm or projection movable in line with said trip but not engaging therewith, a lug or the like, normally filling the space between said trip and said arm or projection, and a pneumatic device operated by said arm or projection designed to move said lug out of its normal position only in the event of the stock being properly fed, whereby if said lug is not so moved said arm or projection will free said trip, substantially as set forth.

2. In a printing-press having stop or throw-off mechanism, and means for controlling the same, a pneumatic device intermittently operated having an outlet in the path of the stock to be fed to the press and designed to be closed thereby, an intermittently-operated shaft having a projection movable in line with a member of said controlling means, and a lug, or the like, operated by said pneumatic device, adapted to move between the projection of said intermittently-operated shaft and the member of said controlling means, whereby the latter is operated in the event of the outlet of said pneumatic device not being closed by the stock, substantially as set forth.

3. The combination with a printing-press having throw-off and stop mechanism, a trip-block, and an intermittently-operated shaft having an arm or projection provided with a lug movable in line with said trip-block, of a pneumatic device having an outlet designed to be closed by the stock fed to the press, and a reciprocating member adapted to be operated by said pneumatic device and designed to normally fit between said trip-block and said lug, whereby the former is operated in the event of said outlet of said pneumatic device not being closed by the stock, substantially as set forth.

4. The combination with a printing-press having throw-off and stop mechanism, a trip-block and an intermittently-operated shaft having an arm or projection provided with a side lug movable in line with said trip-block, of a pneumatic device having a piston connected to said arm or projection, and an outlet designed to be closed by the stock fed to the press, and a second piston adapted to be operated by said pneumatic device and having its rod carrying a lug or thickened portion designed to normally fit between said trip-block and the said side lug, substantially as and for the purpose set forth.

5. The combination with a printing-press having throw-off and stop mechanism, a trip-

block and an intermittently-operated shaft having an arm or projection provided with a side lug movable in line with said trip-block, of a pneumatic device having a piston connected to said arm or projection, a tube opening at its outer end in line with, and designed to be closed by, the stock fed to the press, a second tube and cylinder, and a spring-held piston movable in said latter cylinder and having its rod provided with a lug at its outer end designed to normally fit between said trip-block and the said side lug, substantially as set forth.

6. The combination with a printing-press having throw-off and stop mechanism, a trip-block, and an intermittently-operated shaft having an arm or projection, of a pneumatic device comprising a cylinder having two outlets, one of said outlets lying in the path of the stock and designed to be closed thereby, a piston movable in said cylinder connected to said arm or projection, a second cylinder connected to the other one of said outlets and having a piston therein the rod of which at its outer end is designed to fit between said arm or projection and said trip-block, as and for the purpose set forth.

7. The combination with a printing-press having throw-off and stop mechanism, a trip-block therefor having a shoulder, and an intermittently-operated shaft having an arm or projection provided with a side lug, of a lug designed to fill the space between said side

lug and a shoulder of said trip-block, and a pneumatic device operated by said arm or projection designed to move said lug from said space in the event of the stock being properly fed to the press, but to retain it in position when said stock is not so fed whereby said arm or projection will effect the tripping of said block, substantially as set forth.

8. The combination with a printing-press having throw-off and stop mechanism, a trip-block therefor having a shoulder, and an intermittently-operated shaft having an arm or projection provided with a side lug, of a pneumatic device comprising a cylinder and a piston movable therein connected to said arm or projection, two tubes leading from the lower end of said cylinder, one of said tubes having its upper end in the line of passage of the stock and designed to be closed thereby, a cylinder connected to the other tube, a piston therein, the rod thereof having a lug on its outer end designed to fit between said side lug of said arm and the shoulder of said trip-block, and a spring in said cylinder connected to said latter piston, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN F. McNUTT.

Witnesses:

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ALFRED F. HARRIS.