

No. 668,915.

Patented Feb. 26, 1901.

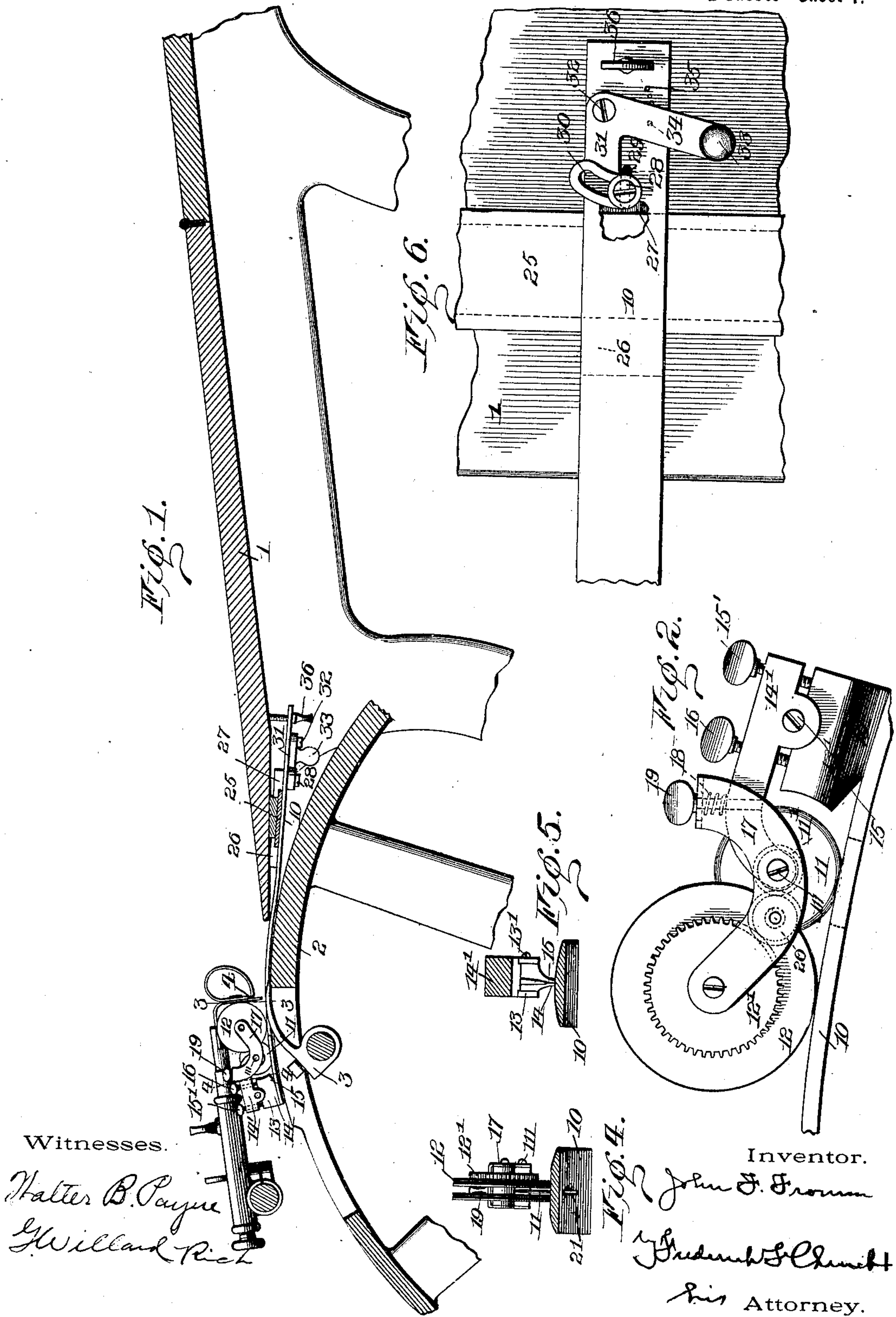
J. F. FROMM.

PAPER SLITTING ATTACHMENT FOR PRINTING PRESSES.

(Application filed Oct. 26, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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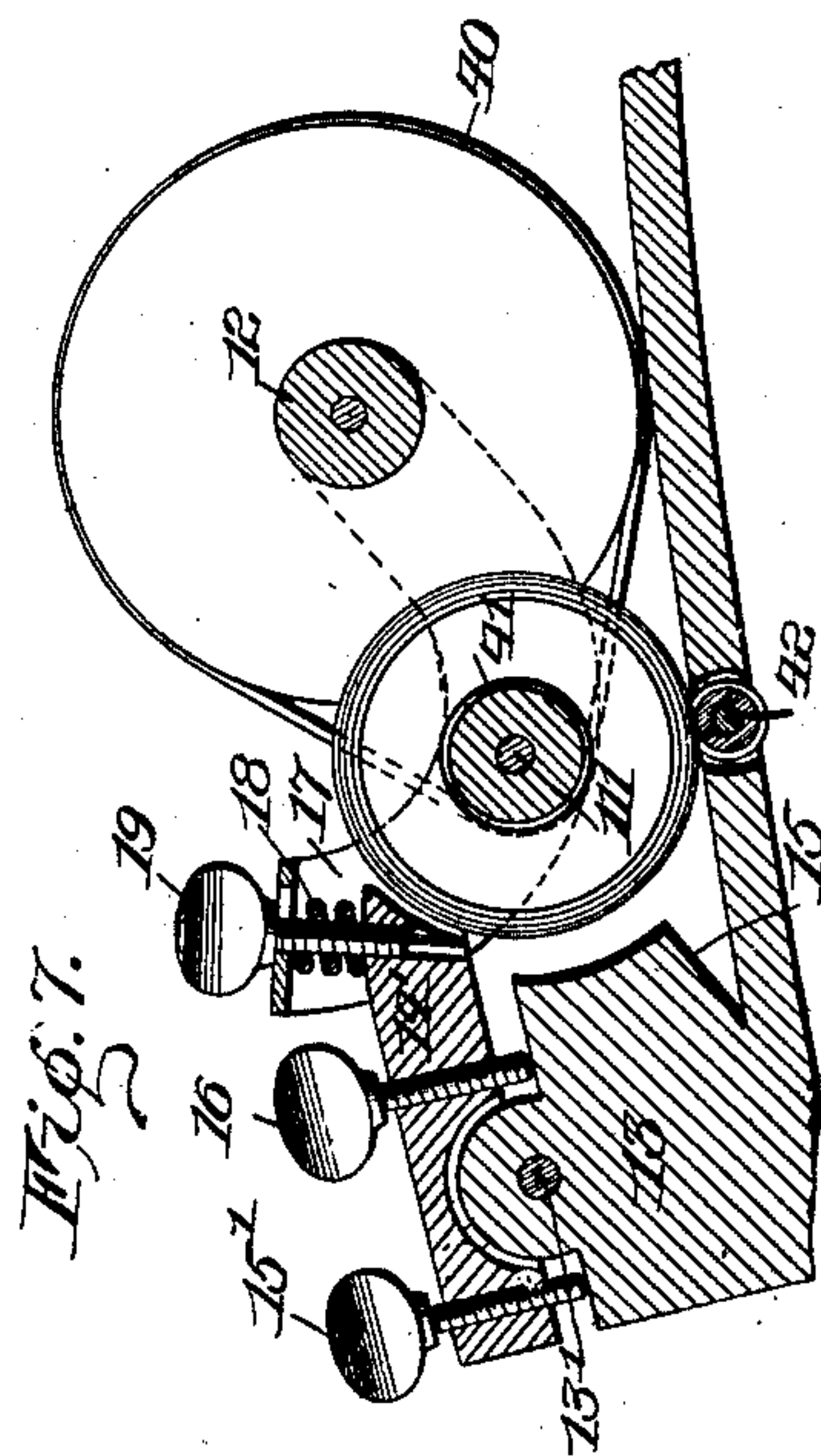
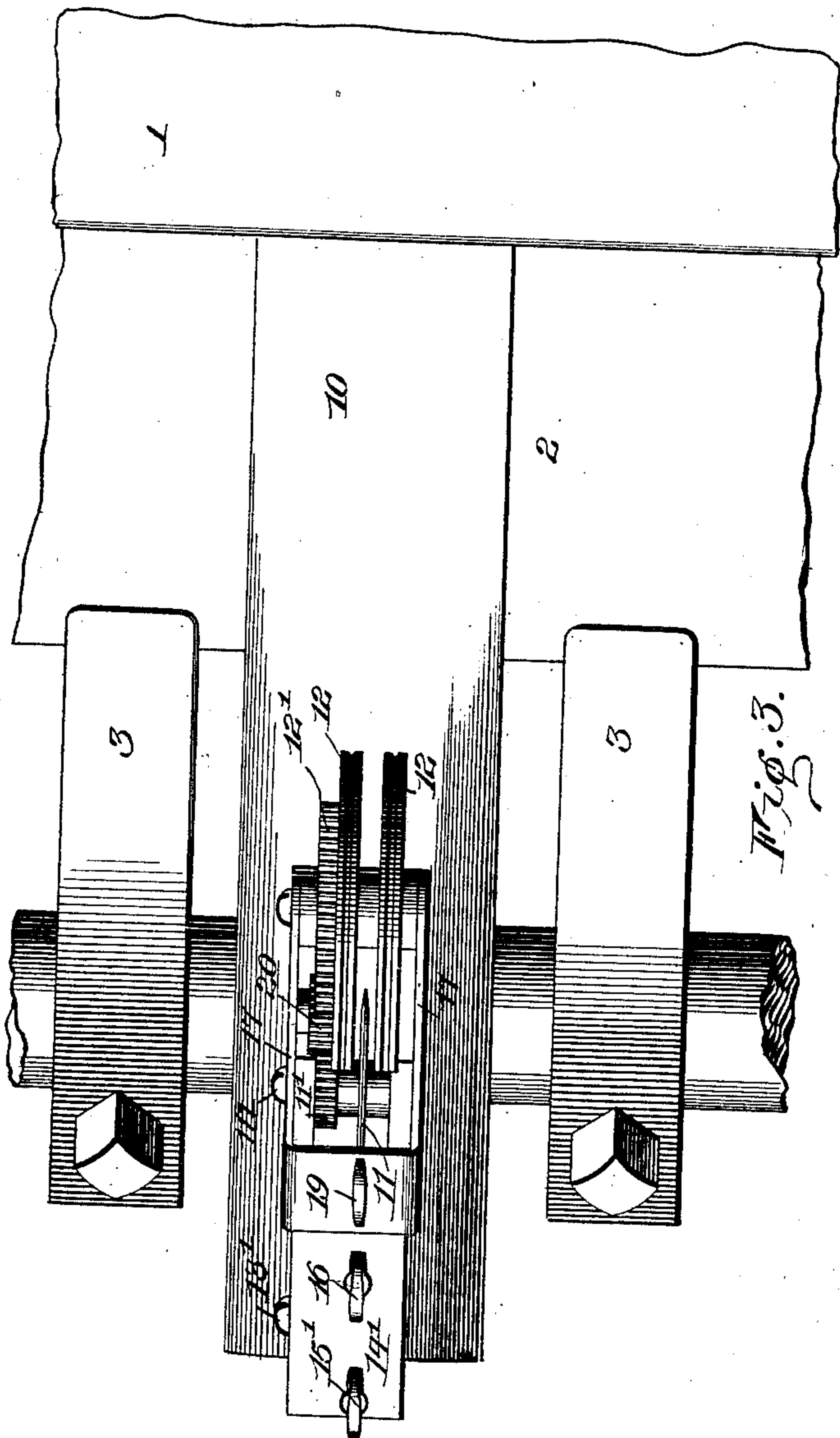
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(No Model.)

2 Sheets—Sheet 2.



Witnesses.

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PAPER-SLITTING ATTACHMENT FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 668,915, dated February 26, 1901.

Application filed October 26, 1900. Serial No. 34,490. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. FROMM, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Slitting Attachments for Printing-Presses; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the drawings forming a part of this specification and to the numerals marked thereon.

My present invention has for its object to provide an improved device for cutting or slitting paper which is capable of attachment to cylinder printing-presses in which the sheet to be printed is carried upon a rotary drum or cylinder, whereby the sheet may be slit as it is fed from the table and delivered in the cut or severed condition after the printing operation.

To these and other ends my invention consists in certain improvements and combinations of parts, all as will be hereinafter fully described, and the novel features pointed out in the claims at the end of this specification.

In the drawings, Figure 1 illustrates a slitting device constructed in accordance with my invention, showing its application to a cylinder printing-press. Fig. 2 is an enlarged side elevation of the device, and Fig. 3, a plan view of the attachment. Fig. 4 is a sectional view on the line 3 3 of Fig. 1. Fig. 5 is a similar view on the line 4 4 of Fig. 1; and Fig. 6 is a bottom plan view of the supporting-arm, showing the adjustable clamping device. Fig. 7 is a side elevation of a modification.

Similar reference-numerals in the several figures illustrate similar parts.

In the present instance I show my device applied to a cylinder printing-press having the finding-table 1 and the impression cylinder or drum 2, provided with the grippers 3, adapted to be operated by any suitable means to grasp the edge of a sheet of paper fed from the table and to carry it around with the cylinder during the printing operation. The slitting or cutting of the paper is performed as the sheet is drawn from the table by means of a suitable cutter, and in the present construction of my device I have shown a cutting mechanism adapted to be supported above the cylinder 2 and in line with the surface of the table. The device is employed in connection

with the usual stops or fingers 4, located above the cylinder and against which the edge of each sheet is placed to insure its proper feeding to the cylinder and to cause its proper register with the printing mechanism.

Mounted upon a supporting arm or blade 10, secured, preferably, to the lower side of the table 1 and curved slightly to conform to the circumference of the cylinder, is a rotary cutting-wheel 11, having a knife-edge and adapted to be operated as the paper is fed to the cylinder by means of a driving-wheel 12, frictionally engaging the paper, any suitable form of driving connection being employed between the cutter and the driver 12. Arranged upon the end of the arm or blade 10 is a standard, forming a support 13 for the parts, as will be described, having a very narrow base 14, undercut upon its forward edge at 15 and sharpened, as shown, to separate the paper after it has been severed and to allow it to pass the support. Pivotally connected to the upper portion of the support 13 by a screw 13' is a bifurcated supporting-arm 14', carrying between its forward ends the cutting-wheel 11, and to adjust the latter relative to the face of the arm or blade 10 I provide set-screws 15' and 16, arranged upon opposite sides of the pivotal point of said arm. Arranged upon the opposite sides of the arm 14 is a frame, preferably embodying the arms 17, journaled upon the axis 111 of the cutting-wheel 11 and carrying at their outer ends the driving-wheel 12, adapted to be operated by frictional engagement with the surface of the paper as it is drawn beneath it, a small spring 18, operating at the rear ends of the frame, serving to hold the wheel in yielding engagement with the sheet, while a set-screw 19, limiting its movement, serves as a means for adjusting the arms to raise or lower the driving-wheel to regulate the friction and accommodate paper of various grades or thickness. In order to cut the paper smoothly without causing it to drag as it is drawn upon the cylinder, I revolve the cutting-knife considerably faster than the speed at which the paper travels and in the direction in which it is moving. In the preferred form of my device I have shown gears 11' and 12' formed upon the sides of the cutting-wheel and driving-wheel, respectively, and arranged between

them to cause their rotation in the same direction is a small pinion 20, carried upon the frame 17, as shown particularly in Fig. 3. A small slit or aperture 21 is provided in the support 10 below the rotary knife to allow the latter to be adjusted relative to the face of the support, so that the sheet may be entirely severed and the liability of its becoming choked or clogged in front of the knife is entirely obviated. The peculiar shape of the upper surface of the support 10 is also important to insure the proper operation of the device and the delivery of the sheet after it has been severed, and while it may be modified extensively I prefer the form shown in the sectional views, Figs. 4 and 5, in which the support is comparatively flat upon its top with the rounded edges, the flattened portion extending slightly beyond the center of the driving-wheel 12, and from said point it is gradually rounded off to form an arched or crowned portion beneath the center of the knife 11, over which crowning portion the moving paper is drawn and held tightly and smoothly, preventing it from wrinkling or fulling in front of the knife. In order to shorten the device and make it more compact, I have shown the driving-wheel provided with an annular recess in its periphery, into which the edge of the cutting-knife may operate.

The device is applicable to all printing-presses of the class described, and to permit its easy application and removal I have provided an adjustable means for securing the arm or blade 10 to the ways 25 usually provided upon the lower side of the feeding-table 1. Located upon the upper side of the arm is a stationary clamping-flange 26, engaging the forward edge of the guide, and a movable clamping block or plate 27, engaging the opposite side of said guide, is provided with a screw or stud 28, operating through an elongated aperture 29 in the arm, and is engaged in a cam-slot 30, formed upon one end of a bell-crank lever 31, pivoted at 32 and provided with an operating knob or handle 33. A small point or projection 34, formed upon the inner side of the lever-arm and adapted to engage with depressions or recesses 35 in the proximate face of the support, serves to hold the clamp in adjusted position. A thumb-screw 36 in the rear end of the arm or blade and adapted to engage the lower side of the table permits the opposite end of the blade and the cutter to be adjusted relative to the face of the drum or cylinder 2, the connection between the arm or blade and the feeding-table being sufficiently loose to permit this.

In Fig. 7 I have shown a modification in which the connection between the driving-wheel and rotary cutter is accomplished by means of a belt 40, extending around the face of the former and over a hub or pulley 41 on the latter, and in said figure is also shown a small roller 42, the surface of which may be either plain or provided with an an-

nular groove in which the edge of the cutter operates.

The device as a whole is simple and compact and is capable of being easily applied or removed. They may be used either singly or several may be provided upon a press; and by its attachment to the table the sheets are slit one at a time as they are fed into the press and while held and drawn by the grippers on the cylinder, insuring the paper being properly cut upon a true line, making a subsequent cutting or trimming operation unnecessary.

As the cutters or slitting attachments are secured to the feed-board or to any other equivalent support, they may be readily removed from above the cylinder for the purpose of adjustment or inspection when desired.

The cutter might be rotated by the direct contact with the paper alone, and this, in connection with the crowning paper-support beneath it, would be advantageous; but I prefer in practice to drive the cutter positively in the manner shown.

I claim as my invention—

1. In a paper-slitter, the combination with a support over which the paper may be passed, of a rotary cutting-knife, a driving-wheel engaging the face of the paper and operated by the movement of the latter and operating connections between said wheel and cutter.

2. In a paper-slitter, the combination with a support over which the paper may be passed, of a rotary cutting-knife, a wheel frictionally engaging the paper and driving connections between the wheel and cutter to cause the operation of the latter in the direction of movement of said paper.

3. In a paper-slitter, the combination with a support over which a sheet of paper may be passed, of a rotary cutter, a wheel adapted to be operated by frictional engagement with the face of the paper, and connections between the wheel and cutter for causing the operation of the latter at an increased surface speed relative to that of the paper and in the direction of its movement.

4. In a paper-slitting device, the combination with a support, a rotary cutter, and means for adjusting the latter relative to the support, of a wheel adapted to be operated by the paper as it is moved across the support and driving connections between the wheel and cutter.

5. In a paper-slitting device, the combination with a support, a rotary cutter and means for adjusting the latter relative to the support, of a driving-wheel adapted to be operated by the paper as it is moved over the support, means for adjusting the wheel relative to the support and independently of the cutter, and operating connections between the driving-wheel and cutter.

6. In a paper-slitting device, the combination with a support, a rotary cutter, and means for adjusting the latter relative to the sup-

port, of a driving-wheel, means for yieldingly supporting the wheel in contact with a sheet of paper as it is passed over the support, an adjusting mechanism for adjusting the wheel 5 relative to the support and driving connections between the wheel and cutter.

7. A paper-slitting device embodying a support, a rotary cutter, a driving-wheel connected thereto, an adjusting mechanism for 10 adjusting the wheel and cutter relative to the support and tension devices for holding the driving-wheel in yielding contact with a sheet of paper passed over the support.

8. In a paper-slitting device, the combination with a paper-support, a rotary cutter, a pivoted supporting-arm carrying the cutter and means for adjusting the arm to vary the position of the cutter relative to the support, 15 of an adjustable driving-wheel operating over the paper-support, and a spring for operating the wheel toward the latter.

9. A slitting attachment for printing-presses embodying a blade extending over the press-cylinder, a cutter supported on the blade and 20 coöperating with the latter to sever the paper drawn between them.

10. A slitting attachment for printing-presses embodying a blade adapted to extend over the press-cylinder having the crowning 30 surface and the depression or recess, and a rotary cutter supported above the blade and operating in the depression in the latter to sever the paper drawn between them.

11. A slitting attachment for printing-presses embodying a blade adapted to extend over the press-cylinder having the crowning 35 surface and the depression or recess, and the rotary cutting-disk mounted on the blade operating in the recess and rotated by the paper drawn between the blade and disk.

12. A slitting attachment for printing-presses embodying a blade adapted to extend over the press-cylinder having the crowning 40 surface and the depression or recess, the cutter operating in the recess and a driving-wheel connected to the cutter and operated to drive the latter by contact with the moving paper.

13. A slitting attachment for presses embodying a blade or support, a narrow standard 50 thereon, and a cutter supported on the standard, coöperating with the support to

sever the paper and means for adjusting said cutter toward and from the support.

14. A slitting attachment for presses embodying a blade or support, a narrow standard 55 thereon a rotary cutter journaled on the standard and coöperating with the support to sever the paper, and a driving-wheel in advance of the cutter and connected to the 60 latter to rotate it.

15. A slitting attachment for presses embodying a blade or support, a narrow standard thereon, a rotary cutter journaled on the 65 standard and coöperating with the support to sever the paper, a frame movably supported on the standard, a spring for moving the frame toward the support and a driving-wheel 70 on the frame connected to the cutter to rotate it.

16. A slitting attachment for presses embodying a support, a rotary cutter coöperating with the latter to sever the paper drawn 75 between them, and a separate independently-yielding driving-wheel connected to the cutter and between which and the support the paper is moved.

17. A slitting attachment for presses embodying a blade or support adapted to extend over a press-cylinder, a rotary cutter coöperating 80 therewith and a driving-wheel located in advance of the cutter and connected to the latter for operating it, said wheel being driven by the paper moving beneath it.

18. The combination with a press having a 85 cylinder and grippers thereon, of a slitting attachment embodying a blade or support extending over the cylinder between the grippers having a cutter thereon coöperating with the blade to sever the paper held upon the 90 cylinder by the grippers.

19. The combination with a press having a cylinder and grippers thereon, and a feed-board, of a slitting device embodying a blade or support secured to the feed-board and extending 95 over the cylinder, a cutter arranged upon the blade or support and coöperating with the latter to sever the paper held by the grippers.

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Witnesses:

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