

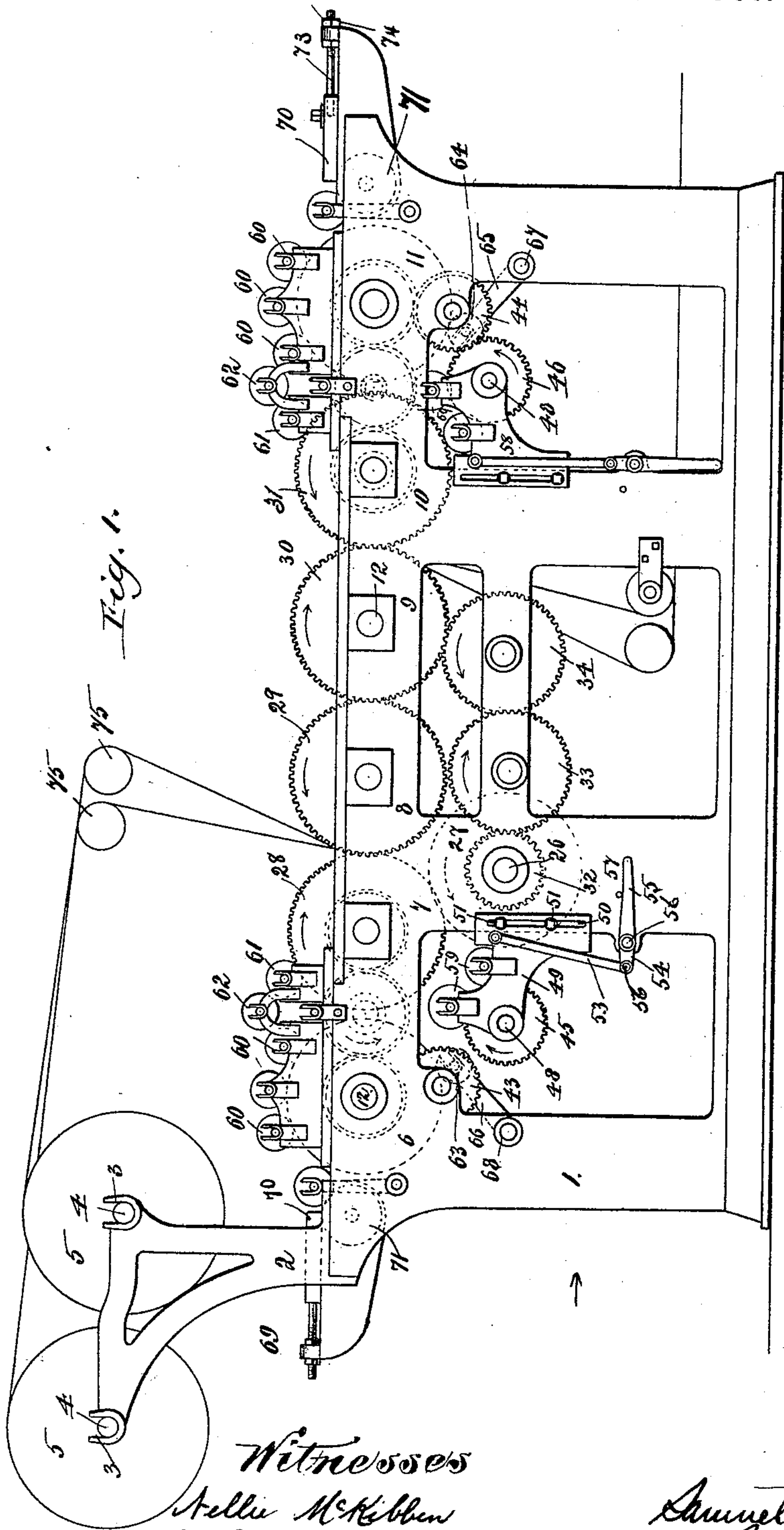
(No Model.)

3 Sheets—Sheet 1.

S. G. GOSS.
PRINTING PRESS.

No. 461,189.

Patented Oct. 13, 1891.



Witnesses
 Nellie McKibben
 John B. Jackson

Twenty
Samuel L. Gass
By Roder Adams.
Atty

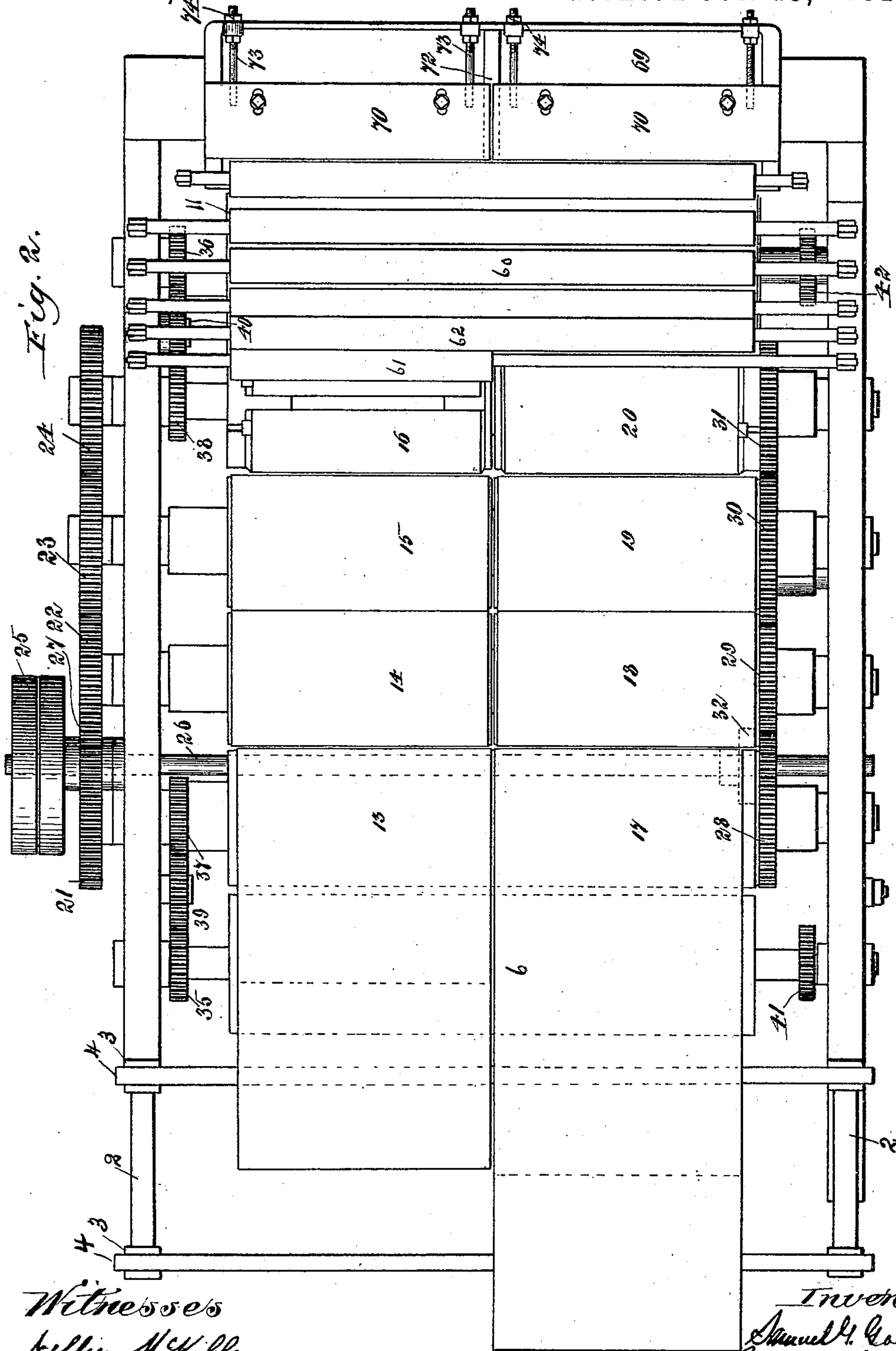
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3 Sheets—Sheet 2.

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Hattie McKibben
John F. Jackson

Inventor
Samuel G. Goss
By Bondro Adams
Att'y.

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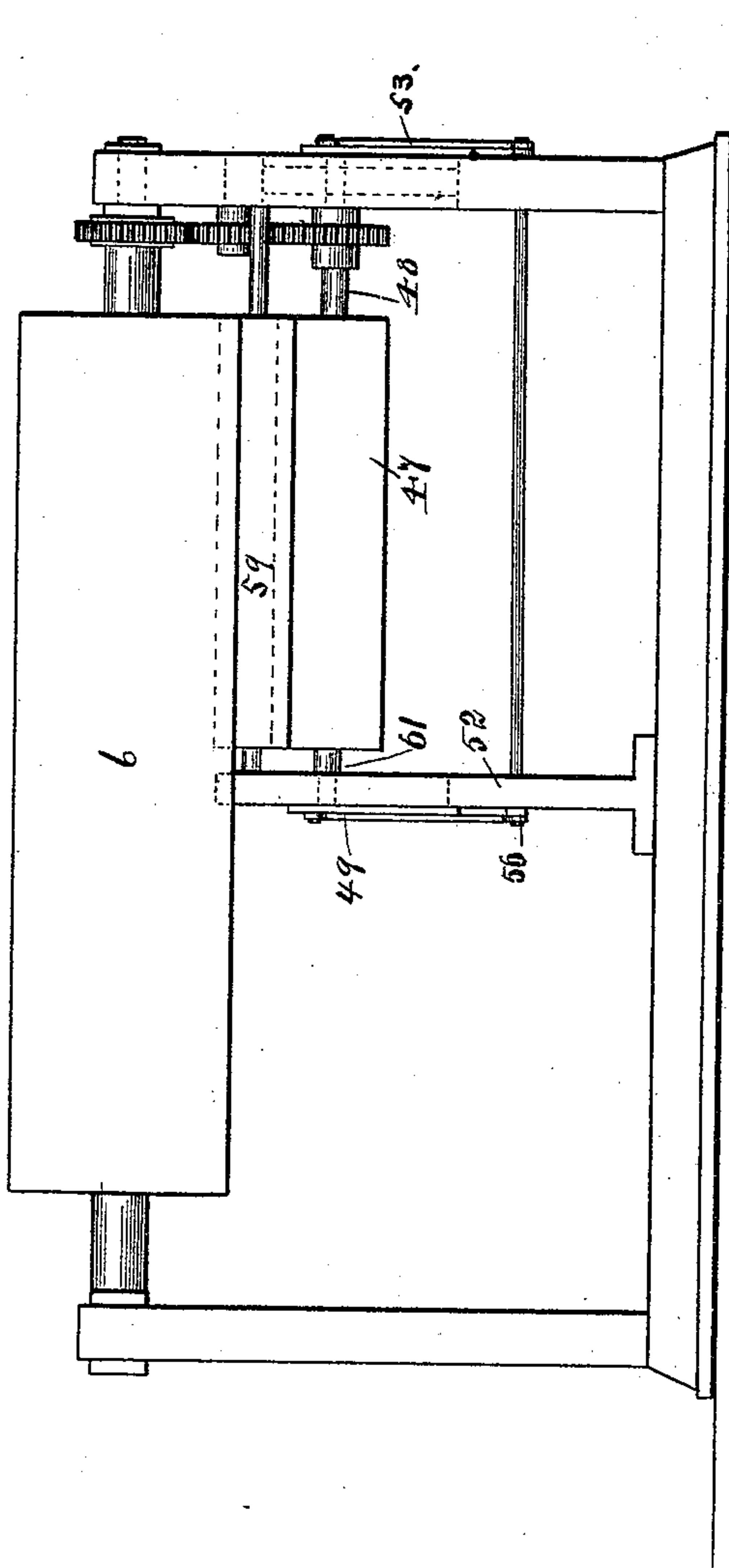
3 Sheets—Sheet 3.

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Fig. 3.



Witnesses

Hellie McKibben
John L. Jackson

Inventor

Samuel G. Goss.
By Roder Adams.
Atty.

UNITED STATES PATENT OFFICE.

SAMUEL G. GOSS, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE GOSS PRINTING PRESS COMPANY, OF SAME PLACE.

PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 461,189, dated October 13, 1891.

Application filed June 18, 1891. Serial No. 396,777. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL G. GOSS, residing at Chicago, in the county of Cook and State of Illinois, and a citizen of the United States, have invented certain new and useful Improvements in Printing-Presses, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation. Fig. 2 is a top or plan view. Fig. 3 is an end elevation looking in the direction indicated by the arrow in Fig. 1.

My invention relates to printing-presses, and more especially to presses which are fitted with cylinders which are made in two parts and are adapted to be run at different rates of speed. These cylinders may be substantially as shown and described in my application filed March 5, 1890, Serial No. 342,779.

The object of my invention is to provide an improved printing-press in which two webs of paper may be printed at the same time and in which the webs may be passed through the press and printed at different rates of speed.

Another object of my invention is to provide improved mechanism for operating the printing-press, so that the cylinders may be operated either singly or together, as desired.

I accomplish these objects as illustrated in the drawings and as hereinafter specified. That which I deem to be new will be pointed out in the claims.

In the drawings, 1 indicates the frame of the printing-press, which may be of any suitable construction adapted to contain the different parts of the machinery.

2 indicates a bracket or frame, one of which is mounted at each side of one end of the printing-press, each bracket being provided with two sockets 3, adapted to receive the ends of mandrels 4, upon which are placed ordinary rolls of printing-paper 5.

Mounted near the top of the frame 1 of the press are six cylinders 6 7 8 9 10 11, which are mounted on shafts 12, which shafts are journaled in opposite sides of the frame and extend transversely of the frame. Of these cylinders 7 and 10 are type or form cylinders, 8 and 9 are impression-cylinders, and 6 and 11 are ink-drums. The cylinders 7, 8,

9, and 10 are divided centrally, portions 13, 14, 15, and 16 of the cylinders being keyed to their respective shafts. The sections 17 18 19 20 of the cylinders 7 8 9 10 are loosely mounted upon the same shafts and are adapted to be locked to the other sections of the cylinders to form continuous cylinders, substantially as described in my former application, Serial No. 342,779. The shafts 12, upon which are mounted the cylinders 7, 8, 9, and 10, at one end are provided with gear-wheels 21, 22, 23, and 24, adapted to mesh successively with each other, substantially as shown in Fig. 2, so that by operating one of the gear-wheels the others will be also operated. A drive wheel or pulley 25 is mounted upon a shaft 26, suitably journaled in the frame, preferably at a point below the cylinders 7 and 8, as best shown in Fig. 1.

27 indicates a gear-wheel mounted upon the shaft 26, which is adapted to mesh with the gear-wheel 21 to operate the gear-wheels 21, 22, 23, and 24.

The sections 17, 18, 19, and 20 of the cylinders 7, 8, 9, and 10 are provided at their outer ends with gear-wheels 28, 29, 30, and 31, which are adapted to mesh with each other in a manner substantially the same as the gear-wheels 21, 22, 23, and 24 to operate the sections 17 18 19 20 of the cylinders 7 8 9 10 when such sections are not locked to the sections 13 14 15 16, as hereinbefore described.

When the sections of the cylinders 7, 8, 9, and 10 are not locked together and it is desired to operate the sections 17, 18, 19, and 20 at a greater or less speed than the other sections of the cylinders, they are operated from the drive-wheel 25 by a gear-wheel 32, which is movably mounted upon the opposite end of the shaft 26 from that upon which is mounted the drive-wheel 25, as indicated by dotted lines in Fig. 2. By moving the gear-wheel 32 toward the end of the shaft it will mesh with a gear-wheel 33, which wheel is in mesh with a similar wheel 34, both suitably mounted in the frame of the press, the wheel 34 being in mesh with the wheel 30 upon the end of the section 19 of the cylinder 9. By this construction the sections 17, 18, 19, and 20 of the cylinders 7, 8, 9, and 10 may be operated at a different rate of speed than the sections 13,

14, 15, and 16 when the sections of each cylinder are not locked together.

The ink-drums 6 and 11 may be of any suitable construction and are adapted to be operated from the drive-wheel 25. This is accomplished by providing each of the cylinders 6 and 11 with a gear-wheel 35 and 36, which gear-wheels are keyed to the shafts upon which the respective cylinders or drums are mounted. The gear-wheels 35 and 36 are operated from the shafts upon which are mounted the cylinders 7 and 10, respectively, by means of gear-wheels 37 38, which operate the gear-wheels 35 36 through intermediate gear-wheels 39 and 40. The intermediate gear-wheels 39 and 40 are preferably mounted in the side of the frame of the press in any suitable manner, as best shown in Fig. 2.

The shafts, upon which are mounted the drums 6 and 11, are also provided at their opposite ends with cog-wheels 41 and 42. The cog-wheels 41 and 42 are adapted to mesh with wheels 43 and 44, suitably journaled in the frame of the machine, as best shown in Fig. 1, which cog-wheels are adapted to mesh with similar wheels 45 and 46. The wheel 45 is secured to the end of a cylinder 47, which extends half-way across the machine and is mounted upon a suitable shaft 48, which is journaled in brackets 49, which are adapted to slide vertically on the frame of the machine, as best shown in Fig. 1. The brackets 49 are each provided with a slot 50, through which pass screws 51, which are adapted to be screwed into the frame of the machine to serve as guides for the brackets 49, and by means of which the brackets may be secured to the frame at any desired height. The bracket which supports the inner end of the shaft 48 is secured in a similar manner to an upright 52, centrally located in the machine, as best shown in Fig. 3.

53 indicates a rod, which at one end is connected to the exterior bracket 49 and at the other end to the short arm 54 of a lever 55, which is pivoted to the frame at any suitable point.

56 indicates a rod connecting the two brackets 49, so that both brackets will be moved equally by the operation of the lever 55.

57 indicates a pin, which is adapted to limit the upward motion of the lever 55. The arrangement of the lever 55, connecting-rod 53, rod 56, and brackets 49 is such that by operating the lever 55 the brackets 49, with the cylinder and ink-rollers mounted upon them, will be raised so that the gear-wheel 45 upon the end of the cylinder 47 will be thrown into or out of engagement with the wheel 43. The wheel 46 is also mounted upon a similar cylinder, which extends half-way across the frame of the machine and is mounted upon brackets 58, which are similar to the brackets 49 and are adapted to be operated in substantially the same manner.

59 indicates ink-rollers, which are adapted to be operated by the sections 17 and 20 of the

type or form cylinders 7 and 10, and also by the rotation of the ink-cylinders 47. The ink-rollers 59 are of equal length with the sections 17 and 20 of the type or form cylinders. The object of the rollers 59 is to ink the sections 17 and 20 of the type or form cylinders when such sections are running at a different speed from the other sections of the type or form cylinders.

60 indicates vibrating ink-rollers, which may be of the usual form, and are suitably mounted in the frame of the press and extend the full length of the ink-drums 6 and 11.

61 indicates ink-rollers, which extend half-way across the press and are adapted to ink the sections 13 and 16 of the type or form cylinders. These rollers are mounted upon axes which are suitably journaled in the opposite sides of the press in the usual manner. When both sections of each cylinder are united, in order to operate them at the same rate of speed the rollers 61 may be replaced by rollers which extend across the press, and will then operate in the usual manner.

62 indicates rollers, which are adapted to feed ink from the rollers 60 to the rollers 61. The arrangement of the rollers at each end of the press is practically the same.

63 64 indicate feed-rollers, which are of equal length with the cylinder 47 and are mounted upon arms 65 and 66 of rock-shafts 67 and 68, which are suitably journaled in the frame of the press and are adapted to be operated by any suitable mechanism to cause the rollers 63 and 64 to vibrate between the ink-drums 6 and 11 and the cylinders upon which are mounted the wheels 45 and 46. By this construction when the surface of the ink-drums 6 and 11 is moving at a greater or less rate of speed than the wheels 45 and 46 ink will be carried from the ink-drums to the cylinders by means of the feed-rollers 63 and 64.

69 indicates ink fountains or reservoirs, one of which is located at each end of the press, which reservoirs may be of the usual form.

70 indicates plates which are placed over the reservoirs 69, and which are adapted, together with rollers 71, which are mounted in the ink-reservoirs, to regulate the supply of ink which is supplied to the ink-drums 6 and 11. The plates 70 each extend half-way across the ink-reservoir, their inner ends being supported by a bar 72 or in any other suitable manner, and are adapted to move toward or from the roller 71, so that a less or greater amount of ink may be supplied. In order to better adjust the plates 70, they are provided, preferably at each end, with adjusting-rods 73, which are operated by nuts 74, screwed upon the outer ends of the rods 73, as best shown in Fig. 2.

When the two sections of the press are being operated at different rates of speed, different amounts of ink will be required for the type or form cylinders. By the construction described if the sections 17 and 20 of the type or form cylinders are being operated at

a slower rate of speed than the sections 13 and 16 the plate 70 at one side of the press is so adjusted that a less supply of ink will be furnished the rollers which ink the cylinders 17 and 20.

When it is desired to operate both sections of the cylinders at the same rate of speed, the sections 13, 14, 15, and 16 are locked to the sections 17, 18, 19, and 20, respectively, substantially as described in my former application hereinbefore referred to. The operation of the press will then be the same as in an ordinary press, except that the paper will be printed from two rolls on two webs. If desired, a single wide web may be used instead of the two webs. In the latter case some suitable slitting device may be provided. The paper will pass from the rolls 5 over rollers 75, between the type or form cylinder 7 and impression-cylinder 8, thence upward between the impression-cylinders 8 and 9, thence downward between the impression-cylinder 9 and type-cylinder 10, and thence to any suitable folding-machine or delivery apparatus.

When the sections of the cylinders are operated at different rates of speed, the sections 17, 18, 19, and 20 are disconnected from the sections 13, 14, 15, and 16, so that they may be rotated independently of said sections. The gear-wheel 32 is then moved outward upon the shaft 26 until it meshes with the wheel 33. By then operating the drive-wheel 25 the sections 13, 14, 15, and 16 will be rotated at one rate of speed and the sections 17, 18, 19, and 20 at a different rate of speed, the difference in the rapidity of rotation being determined by the difference in size between the wheels 27 and 32. The amount of the web printed will therefore vary accordingly.

If it is desired to print a newspaper having six pages, one section of the machine may be so adjusted as to operate at half the speed of the other, and therefore if the press is adapted to print four pages on either the sections 13, 14, 15, and 16 or the sections 17, 18, 19, and 20 while running independently of each other at the same rate of speed by running the sections 17 18 19 20 at half the speed of the sections 13, 14, 15, and 16 at each revolution of the sections 13, 14, 15, and 16 of the cylinders four pages will be printed, while at the same time the sections 17, 18, 19, and 20, running at half the speed of the other sections, will print only two pages. If it is desired to print an eight-page paper, by locking the sections of the cylinders together and disengaging the wheel 32 from the wheel 33 the sections of the cylinders may all be run at the same rate of speed and eight pages will be printed at each revolution of the cylinders.

Ordinarily the forms are placed on the type or form cylinders so that the columns are parallel with the axes of the cylinders; but I do not confine myself to this arrangement.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a printing-press, the combination, with

a frame and form and impression cylinders mounted in said frame, each of said cylinders being composed of sections, one of which is keyed to the shaft upon which it is mounted and the other being loosely mounted upon the same shaft, of mechanism for operating the sections of the cylinders at different rates of speed and mechanism for inking the sections of the form-cylinders when they are rotating at different rates of speed, substantially as described.

2. In a printing-press, the combination, with a frame and form and impression cylinders mounted in said frame, each of said cylinders being composed of sections adapted to be rotated at different rates of speed, of mechanism for operating the sections of each cylinder at different rates of speed and mechanism for inking the sections of the form-cylinders, substantially as described.

3. In a printing-press, the combination, with a frame and form and impression cylinders mounted in said frame, each of said cylinders being divided into two sections, the sections of the cylinders at one side of the press being keyed to their respective shafts and the other sections loosely mounted on the same shafts, of gear-wheels mounted upon said shafts, adapted to operate said shafts uniformly, mechanism for driving said gear-wheels, and mechanism for operating at a different rate of speed the sections of the cylinders which are loosely mounted upon the shafts, substantially as described.

4. In a printing-press, the combination, with a frame and form and impression cylinders mounted in said frame, each of said cylinders being in sections, the sections of said cylinders at one side of the press being keyed to the shafts upon which they are mounted and the sections of the cylinders at the other side of the press being loosely mounted upon the same shafts, of mechanism for rotating the shafts upon which the cylinders are mounted, gear-wheels 28, 29, 30, and 31 upon the outer ends of the loose sections of the cylinders, gear-wheel 32, mounted and adapted to slide upon the shaft upon which the drive-wheel is mounted, and wheels 33 and 34, mounted in the frame of the press for communicating motion from the drive-wheel to the gear-wheel 30, substantially as described.

5. In a printing-press, the combination, with form and impression cylinders, each composed of sections, said sections being adapted to be rotated at different rates of speed, and mechanism for rotating said sections at different rates of speed, of ink-rollers 61, adapted to ink the sections of the form at one side of the press, and rollers for inking the sections at the other side of the press when the sections are rotating at different rates of speed, substantially as and for the purpose specified.

6. In a printing-press, the combination, with form and impression cylinders, each of said cylinders being composed of two sections, the sections of each cylinder being adapted to

be rotated at different rates of speed, and mechanism for rotating said sections at different rates of speed, of an ink-drum mounted in the frame of the press, an ink cylinder and roller adapted to convey ink to the form-cylinder on one side of the press, a feed-roller for carrying ink from said ink-drum to said ink-cylinder, and mechanism for inking the form-cylinder at the other side of the press, substantially as described.

7. In a printing-press, the combination, with sectional form and impression cylinders, means for rotating the sections at different rates of speed, ink-drum 6, rollers adapted to carry ink from the drum 6 to one of the sections of the form-cylinder, and wheel 43, adapted to be operated by the rotation of said drum, of movable brackets 49, cylinder 47, mounted upon said brackets, a vibrating roller for carrying ink from the ink-drum to the cylinder 47, wheel 45 upon the end of said cylinder, rollers for carrying ink from said cylinder to the other section of the form-cylinder, and devices for vertically adjusting said brackets, substantially as and for the purpose specified.

8. In a printing-press, the combination, with sectional form and impression cylinders, means for rotating the sections at different rates of speed, ink-drum 6, rollers for carrying ink from said drum to one of the sections of the form-cylinder, and wheel 43, adapted

to be operated by the rotation of said drum, of movable brackets 49, cylinder 47, mounted upon said brackets, a vibrating roller for carrying ink from the ink-drum to the cylinder 47, wheel 45 upon the outer end of said cylinder, rollers 59, adapted to be operated by said cylinder to ink the other section of the form-cylinder, rod 53, lever 55, and devices for securing said brackets at different heights upon the frame of the press, substantially as and for the purpose specified.

9. In a printing-press, the combination, with a frame and form and impression cylinders mounted in said frame, each of said cylinders being composed of sections, one of which is keyed to the shaft upon which it is mounted and the other being loosely mounted upon the same shaft, of a shaft 26, drive-wheel mounted upon said shaft, a wheel 32, mounted and adapted to slide upon said shaft, gearing adapted to be operated from the wheel 32 to rotate the loosely-mounted sections of the cylinders, gearing connected with the drive-shaft for rotating the cylinder-sections which are keyed to the shafts, and mechanism for inking the sections of the cylinders, substantially as specified.

SAMUEL G. GOSS.

Witnesses:

JOHN L. JACKSON,
RALPH VANDYKE.