

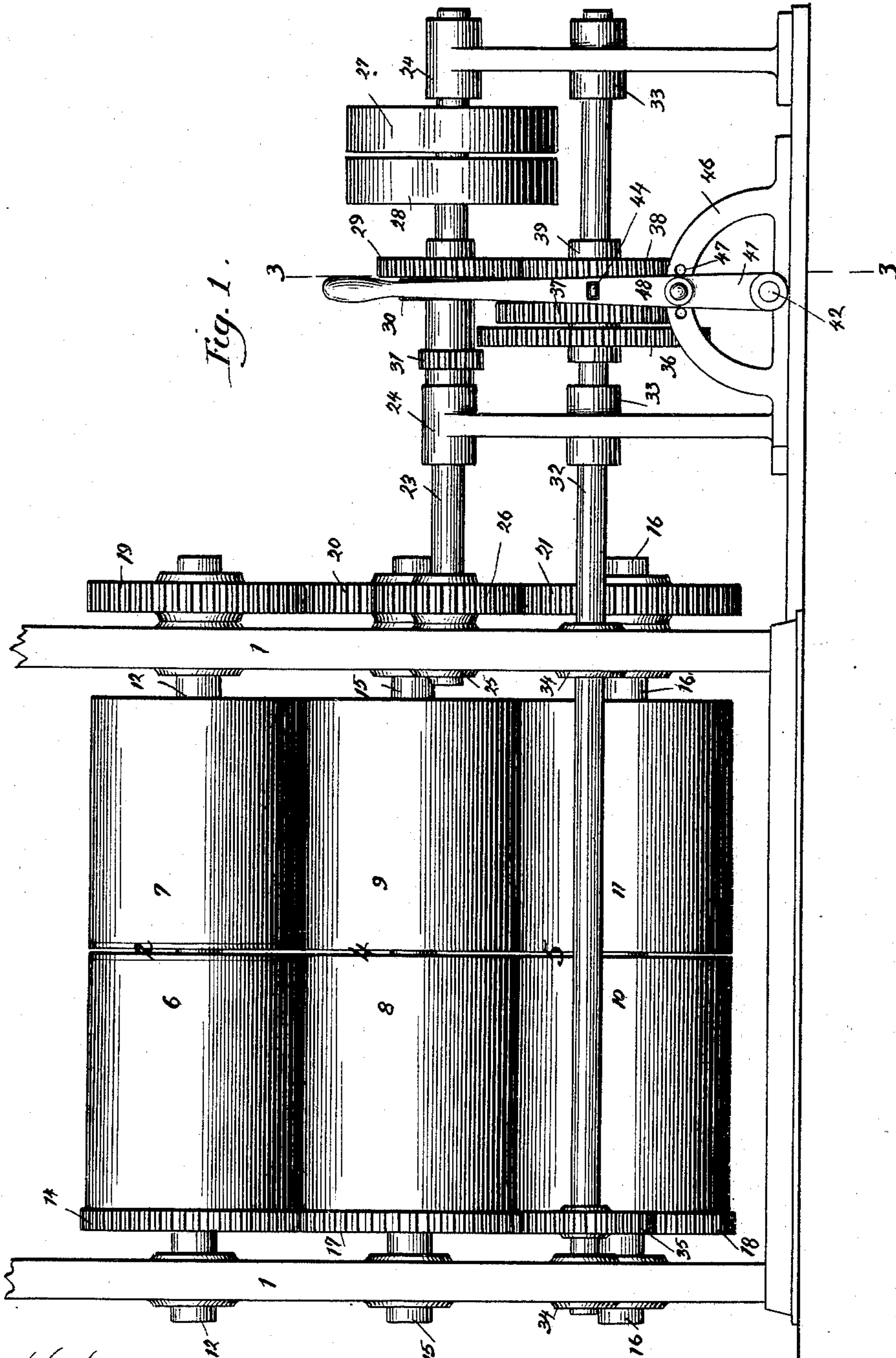
(No Model.)

2 Sheets—Sheet 1.

S. G. GOSS.
PRINTING PRESS.

No. 483,687.

Patented Oct 4, 1892.



Witnesses:

Ellie McKibben

John L. Jackson.

Inventor:

Samuel G. Goss

by Bond, Adams & Pickard

Attorneys

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

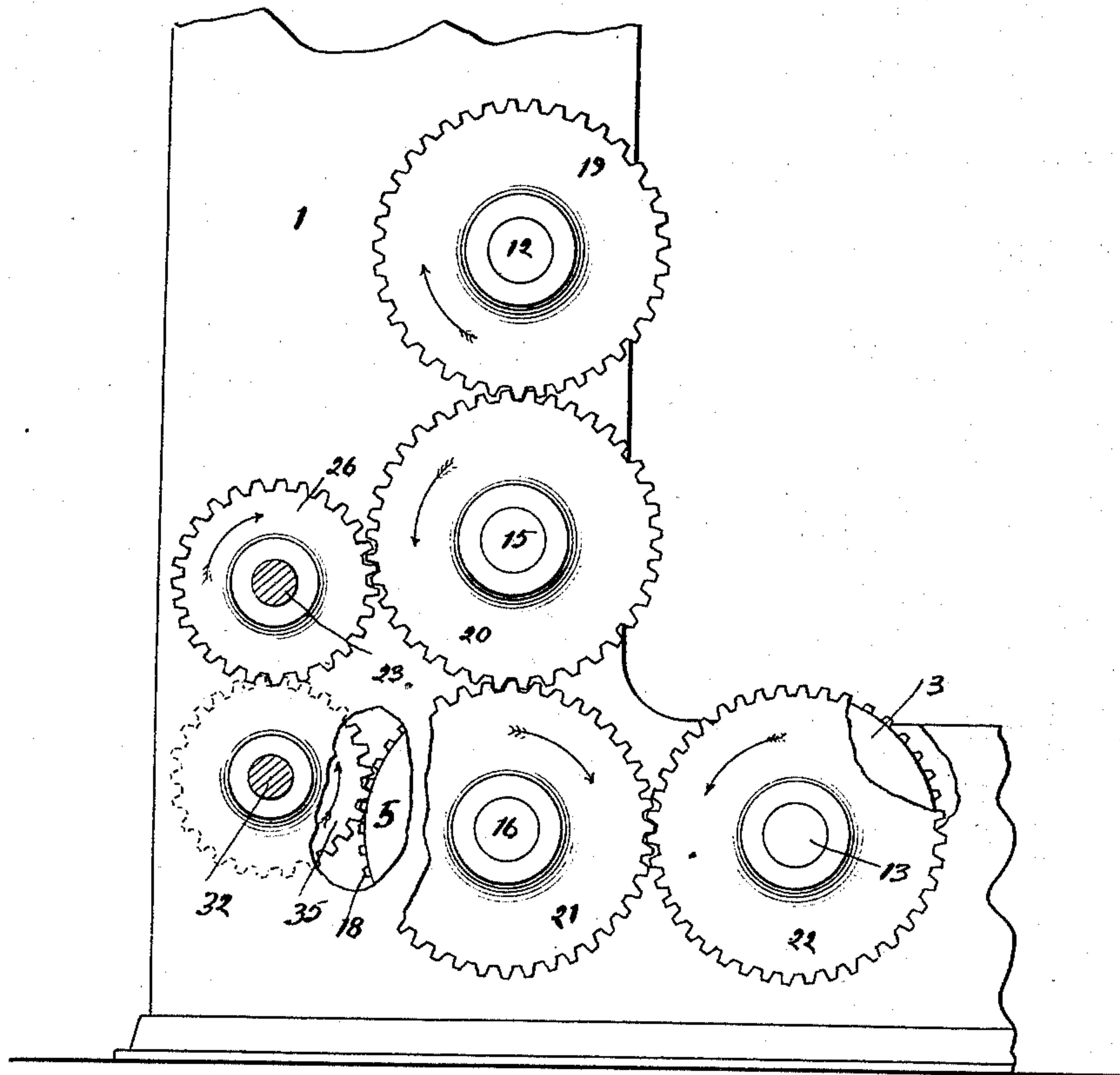


Fig. 4.

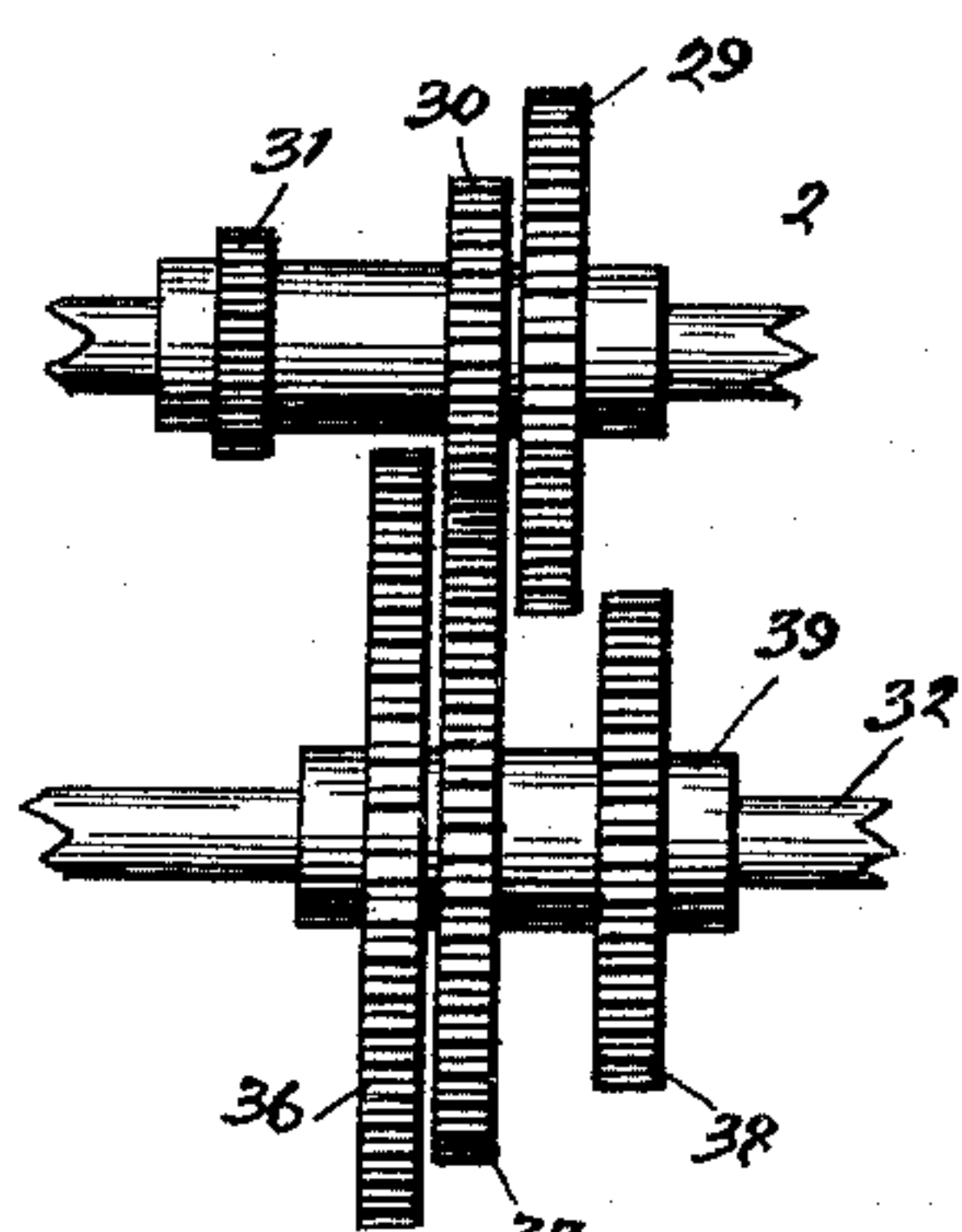


Fig. 3.

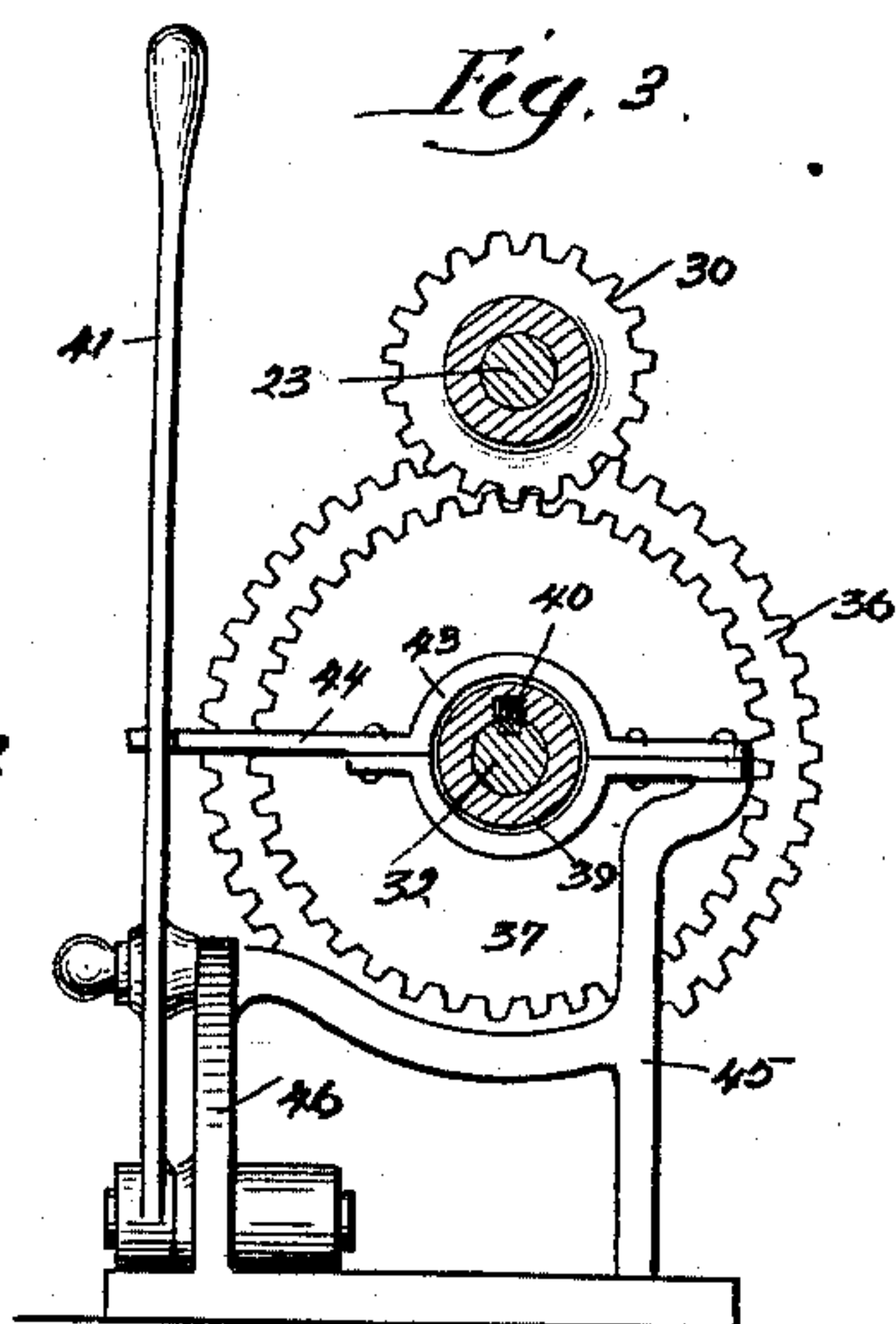
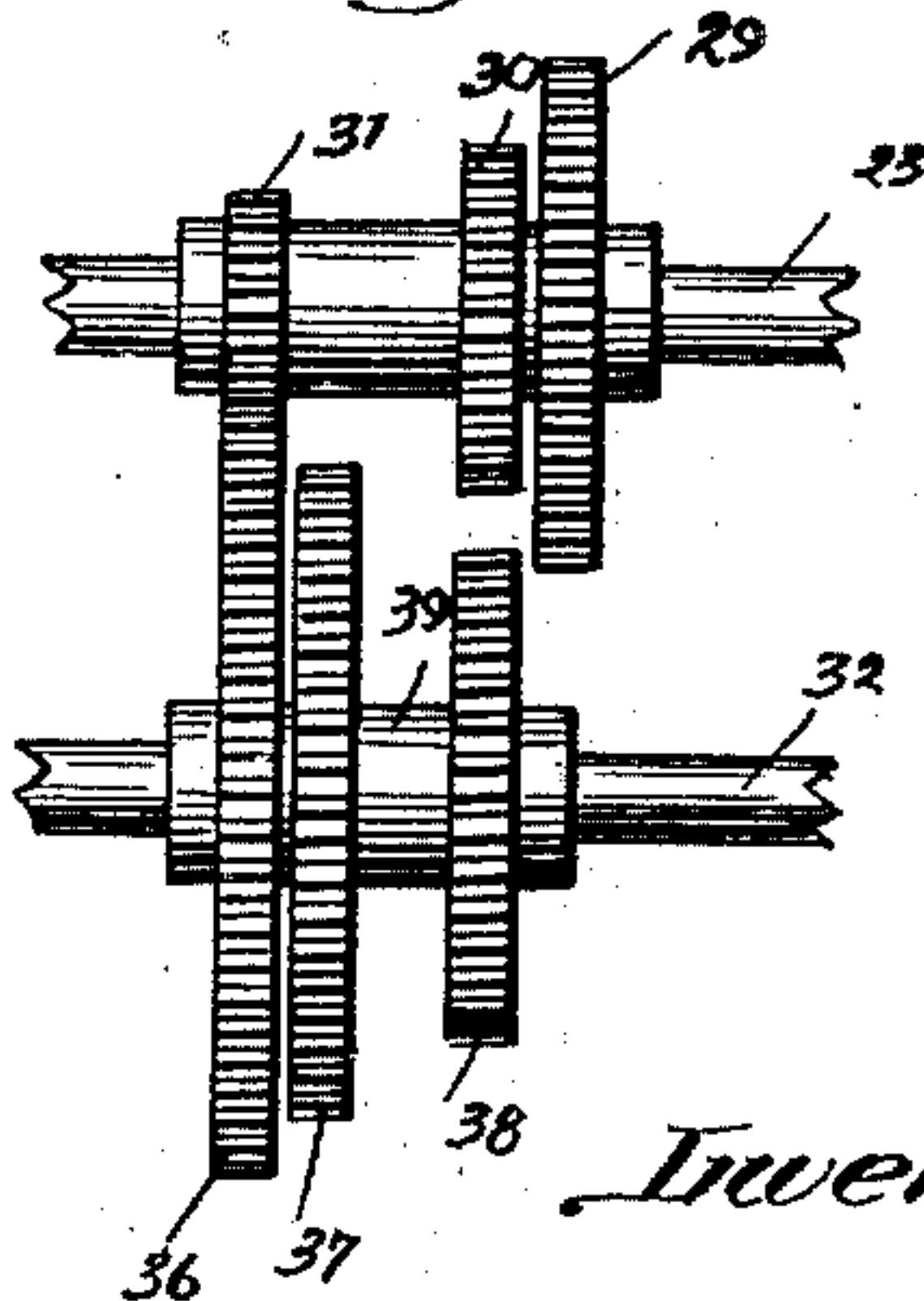


Fig. 5.



Witnesses:

Kellie McKibben
John L. Jackson.

Inventor:

Samuel G. Goss
by Bond, Adams & Pickard

Attorneys

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. 483,687, dated October 4, 1892.

Application filed January 9, 1892. Serial No. 417,570. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL G. GOSS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, 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 an end elevation of a portion of the press, showing my improvements. Fig. 2 is a side elevation of the parts shown in Fig. 1. Fig. 3 is a detail, being a vertical section on line 3 3 of Fig. 1, and Figs. 4 and 5 are details showing the different engagements of the driving-wheels.

My invention relates to printing-presses, and especially to presses of the class described in my patent, No. 461,189, dated October 13, 1891, in which the form and impression cylinders are each composed of sections rotatable independently of each other to adapt them to be driven at different rates of speed.

The object of my present invention is to provide improved mechanism for driving the cylinders of printing-presses of the above description. I accomplish this object as hereinafter specified and as illustrated in the drawings.

That which I regard as new will be pointed out in the claims.

In the drawings, 1 indicates the frame of the printing-press, which may be of any approved construction, in which frame are mounted impression-cylinders 2 and 3 and form-cylinders 4 and 5. The form and impression cylinders each consist of two sections 6 7 8 9 10 11. The impression-cylinder 3 is preferably located on a level with and is next to the cylinder 5, as best shown in Fig. 2, and it is similar in construction and operation to the impression-cylinder 2. The impression-cylinders 2 and 3 are mounted upon shafts 12 and 13, respectively, which shafts are suitably journaled in the frame 1. The section 6 of the cylinder 2 is loosely mounted upon the shaft 12, so that it will rotate independently of the shaft, and it is provided on its outer end with a cogged ring 14, as best shown in Fig. 1. The cogged ring 14 may consist either of a wheel rigidly attached to the end of the cyl-

inder or it may consist of a ring suitably secured upon the end of the cylinder. The section 7 of the cylinder 2 is fixed upon the shaft 12 and rotates therewith. The mounting of the sections of the cylinder 3 upon the shaft 13 is in all respects similar to that described with regard to the sections 6 and 7 of the cylinder 2. The cylinders 4 and 5 are mounted upon shafts 15 and 16, respectively, which shafts are substantially similar to the shafts 12 and 13 and are similarly journaled in the frame of the press. The sections 8 9 10 11 of the cylinders 4 and 5 are also mounted similarly to the sections 6 7 of the cylinder 2, and the sections 8 and 10 are provided with cogged rings 17 and 18, which are similar to the ring 14. The rings or wheels 14, 17, and 18 and the ring upon the corresponding section of the cylinder 3 intermesh successively with each other, as best shown in Fig. 1, all the rings being of the same diameter. Mounted upon the several cylinder-shafts are cogged wheels 19, 20, 21, and 22, which are preferably mounted upon portions of the shafts which project to the outside of the frame of the press, as best shown in Fig. 1; but they may be located upon the shafts at any other convenient point. The wheels 19, 20, 21, and 22 are so arranged as to intermesh successively with each other, as best shown in Fig. 2, and they are of the same diameter and also of equal diameter with the rings 14, 17, and 18.

23 indicates a shaft which is journaled in suitable bearings 24 and 25, which are located at one side of the press, as best shown in Fig. 1.

26 indicates a pinion mounted upon one end of the shaft 23 and in position to engage the wheel 20 upon the shaft 15. If desired, however, instead of causing the pinion 26 to intermesh with the wheel 20 it may be so located as to intermesh with any other one of the wheels 19, 20, 21, and 22. The arrangement described, however, is that which I prefer.

27 indicates a band-wheel, and 28 indicates an idler, both of which are mounted upon the shaft 23. The shaft 23 may be driven from any suitable source of power by means of bands running over the wheel 27. I do not

wish to limit myself, however, to the use of a band-wheel, as any suitable power may be used for driving the shaft 23.

29, 30, and 31 indicate gear-wheels, which are of different diameters and are mounted upon the shaft 23 in about the positions shown in Figs. 1, 4, and 5. As shown in the drawings, the wheel 30 is half the diameter of the wheel 37, and the wheel 31 is one-fourth the diameter of the wheel 36, the object of which will be explained more fully hereinafter.

32 indicates a shaft suitably journaled in bearings 33 and 34, as best shown in Fig. 1, which shaft is parallel with the shaft 23 and extends across the end of the press, as shown in Fig. 1.

35 indicates a pinion carried by the shaft 32 in such position as to engage one of the rings 14, 17, or 18, carried by the section 6, 8, or 10 of the impression or form cylinders, as best shown in Figs. 1 and 2. As shown in the drawings, the pinion 35 engages the ring 18; but it may be made to engage any other desired ring. The pinion 35 is of the same diameter as the pinion 26. It will be seen that by the rotation of the shaft 32 the sections 6, 8, 10 and the loosely-mounted section of the cylinder 3 will be driven at a uniform rate of speed. By rotating the shaft 23 the shafts 12, 15, 16, and 13 will be driven at a uniform rate of speed, and the fixed sections 7, 9, 11 and the fixed section of the cylinder 3 will thereby be rotated at a uniform rate of speed. By this construction if a uniform rate of speed is given to the shafts 23 and 32 both sections of each cylinder will rotate at the same rate of speed, and all the cylinders will rotate at the same rate of speed. If, however, the shafts 23 and 32 are rotated at different rates of speed, the sections on one side of the press (as on the left-hand side in Fig. 1) will rotate at one rate of speed and the other sections of the cylinders will rotate at a different rate of speed.

36, 37, and 38 indicate gear-wheels mounted upon the shaft 32, which gear-wheels are of such size as to intermesh, respectively, with the wheels 31, 30, and 29, as best shown in Figs. 1, 4, and 5. The wheels 36, 37, and 38 are so mounted upon the shaft 32 that when the wheels 29 and 38 are in engagement none of the other wheels will be in engagement, and likewise when the wheels 37 and 30 are in engagement, as shown in Fig. 4, the other wheels will be out of engagement. The wheels 29 and 38 are of the same diameter, so that when they are engaged with each other and the shaft 23 is rotated the shaft 32 will be driven at the same rate of speed. By making the wheel 30 one-half the diameter of the wheel 37 when the shaft 32 is driven through the wheels 30 and 37 the shaft 32 will rotate only half as fast as the shaft 23, and when the shaft 32 is driven through the wheels 31 and 36 the shaft 23 will rotate four times as fast as the shaft 32. By this construction the dif-

ferent sections of the cylinders may be driven at the same rate of speed. The sections on one side of the press may be driven twice as fast as those on the other side of the press, or four times as fast, as may be necessary in printing papers of different sizes.

I do not wish to limit myself to the use of gear-wheels of the same relative sizes as those shown in the drawings, as the difference in the rates of speed of the sections on the different sides of the press may be regulated, as desired, by the use of gear-wheels of proper relative diameters.

In order that the wheels 36, 37, and 38 may be shifted upon the shaft to engage the gear-wheels on the shaft 23, they are mounted upon a sleeve 39, which slides upon a feather 40, as best shown in Fig. 3. This permits of their being moved lengthwise of the shaft, but prevents their rotation independently of the shaft.

41 indicates a lever for operating the gear-wheels 36, 37, and 38, which lever is pivoted at 42 to a suitable support, and is connected to a collar 43, which collar encircles the sleeve 39, as best shown in Fig. 3.

44 indicates a lever which connects the lever 41 to the collar 43, which lever 44 is pivoted at one end to a suitable bracket 45 and at its other end is connected to the lever 41. By operating the lever 41 the collar 43 will be moved lengthwise of the shaft 32, and the gear-wheels 36, 37, and 38 will thereby be thrown into or out of engagement with the gear-wheels on the shaft 23.

46 indicates a segmental bracket in which are holes 47.

48 indicates a pin which is adapted to pass through a suitable hole in the lever 41 and one of the holes 47 in the bracket 46, so that the lever may be locked in place when one of the gear-wheels 36, 37, or 38 is in engagement with the corresponding wheel on the shaft 23.

By operating the lever the different gear-wheels on the shafts 32 and 23 may be readily thrown into or out of engagement with each other and the relative speeds of the sections on different sides of the press may be easily regulated.

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

1. The combination, with sectional form and impression cylinders, the sections on opposite sides of the press being adapted to rotate independently of each other, of two shafts geared, respectively, to the cylinder-sections and provided with gear-wheels of different sizes, and means for throwing the said different-sized gear-wheels into and out of engagement to regulate the relative speed of the cylinder-sections at opposite sides of the press, substantially as described.

2. The combination, with sectional printing-press cylinders, the sections of each cylinder being adapted to be rotated independ-

ently of each other, of two shafts geared, respectively, to the cylinder-sections and provided with two sets of gear-wheels, each wheel in one set being adapted to intermesh with a wheel in the other set, and means for moving the wheels of the different sets into engagement with each other, substantially as and for the purpose specified.

3. The combination, with sectional printing-press cylinders, the sections of each cylinder being adapted to be rotated independently of each other, of two shafts geared, respectively, to the cylinder-sections and provided with two sets of gear-wheels, the wheels in each set being of different diameters and each wheel in one set being adapted to intermesh with a wheel in the other set, and means for effecting the engagement of the different intermeshing wheels with each other, substantially as described.

4. The combination, with cylinder-shafts, sectional form and impression cylinders mounted thereupon, the sections at one side of the press being loosely mounted upon said shafts and the other sections being fixed upon said shafts, of a shaft 23, gearing for rotating said cylinder-shafts, shaft 32, gearing for rotating said loosely-mounted cylinder-sections, gear-wheels of different sizes carried by each of said shafts 23 and 32, each wheel of one of the shafts 23 or 32 being adapted to intermesh with one of the wheels on the other shaft, and means for throwing said wheels into and out of engagement with

each other, substantially as and for the purpose specified.

5. The combination, with cylinder-shafts, sectional form and impression cylinders mounted thereupon, the sections at one side of the press being loosely mounted upon said shafts and the other sections being fixed upon said shafts, gearing carried by said loose sections, and gear-wheels carried by said cylinder-shafts, of a shaft 23, pinion 26, carried thereby, shaft 32, pinion 35, gears 29, 30, and 31 on said shaft 23, movable gears 36, 37, and 38 on said shaft 32, and means for moving said gears 36, 37, and 38 upon the shaft 32, substantially as and for the purpose specified.

6. The combination, with cylinder-shafts, sectional form and impression cylinders mounted thereupon, the sections at one side of the press being loosely mounted upon said shafts and the other sections being fixed upon said shafts, of a shaft 23, gearing for rotating said cylinder-shafts, shaft 32, gearing for rotating said loosely-mounted cylinder-sections, gear-wheels of different sizes carried by each of said shafts 23 and 32, each wheel on one of the shafts 23 or 32 being adapted to intermesh with one of the wheels on the other shaft, levers 41 and 44, and collar 43, substantially as and for the purpose specified.

SAMUEL G. GOSS.

Witnesses:

JOHN L. JACKSON,
A. H. ADAMS.