

(No Model.)

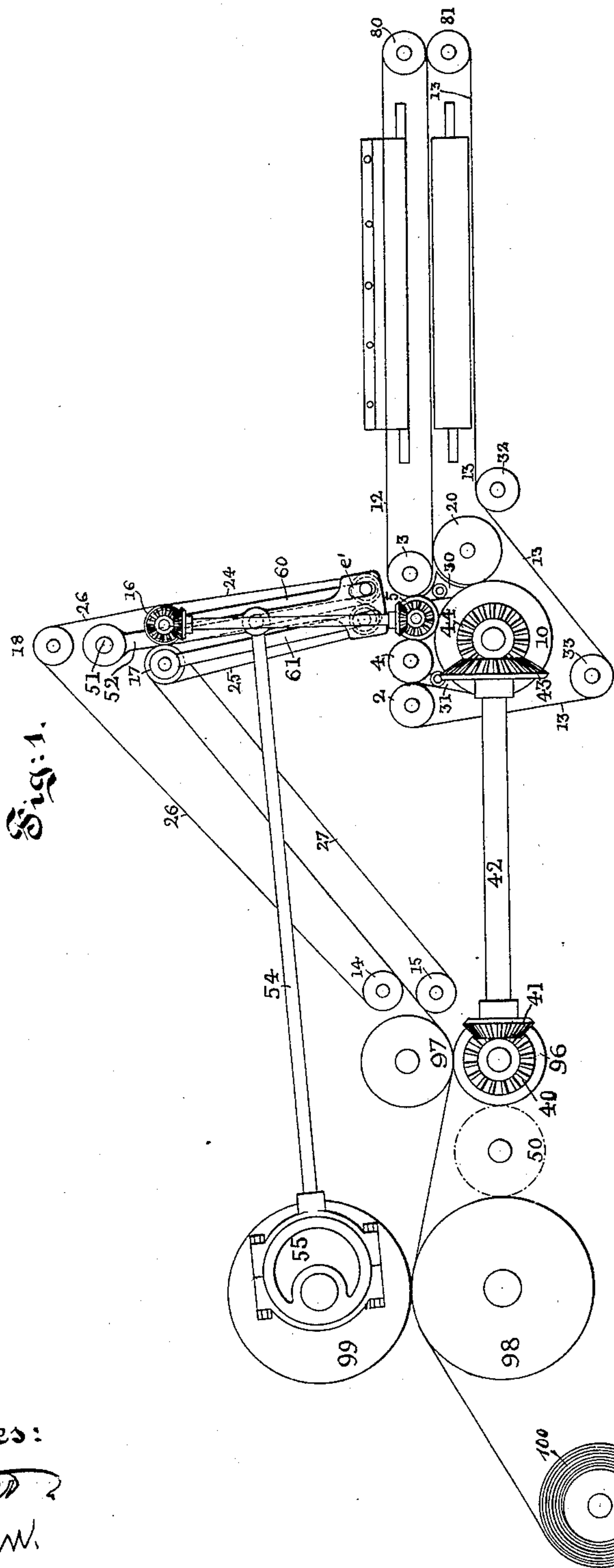
3 Sheets—Sheet 1.

W. SCOTT.

SHEET DELIVERY MECHANISM FOR PRINTING MACHINES.

No. 318,143.

Patented May 19, 1885.



Witnesses:

A. H. G. G. G. G.
A. H. G. G. G. G.

Inventor:

Walter Scott

by his Atty.

Edward Kent &

(No Model.)

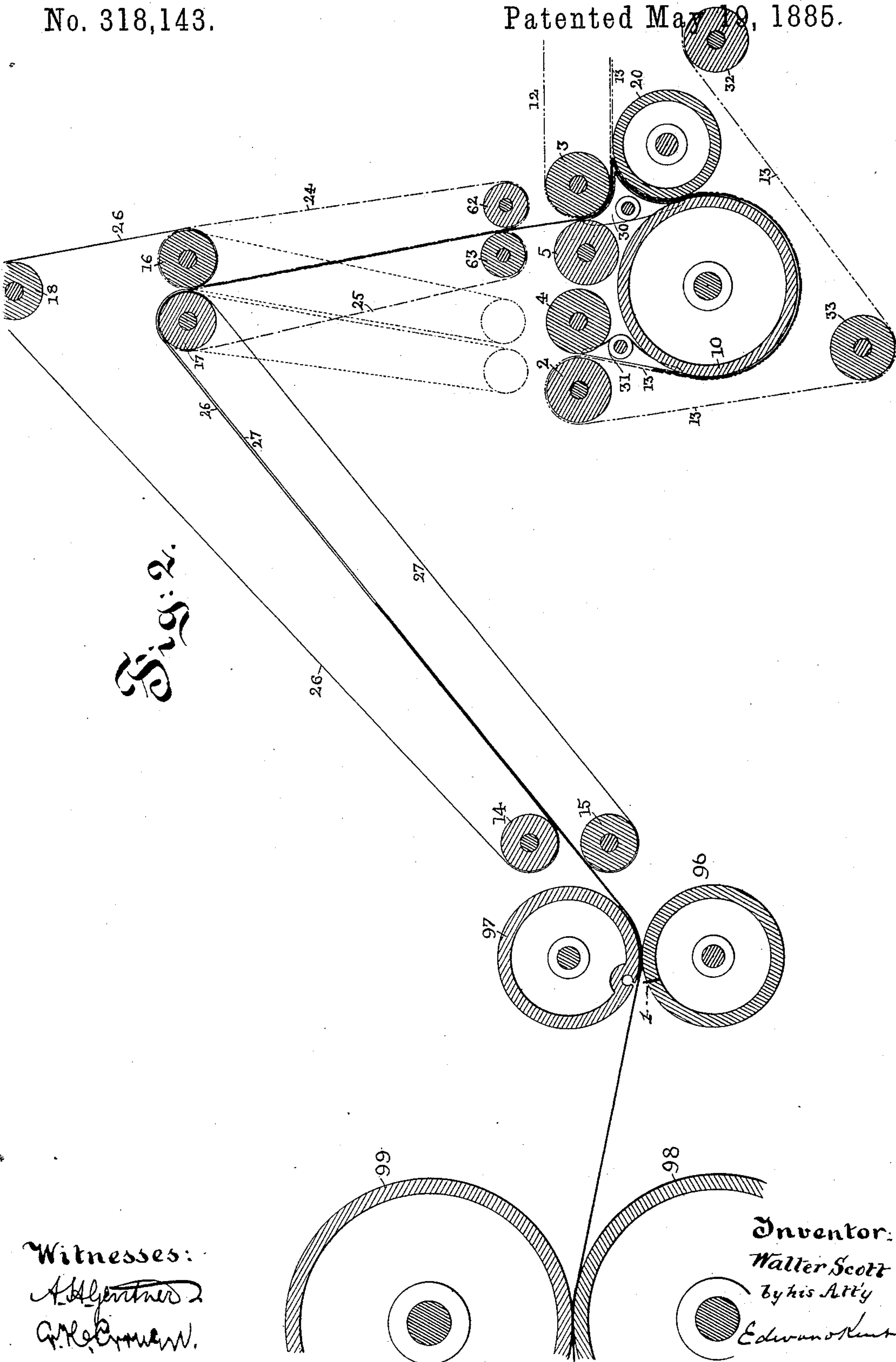
3 Sheets—Sheet 2.

W. SCOTT.

SHEET DELIVERY MECHANISM FOR PRINTING MACHINES.

No. 318,143.

Patented May 19, 1885.



Witnesses:

A. H. Gentry
G. R. C. M. W.

Inventor:

Walter Scott

by his Atty

Edward Kent & Co.

(No Model.)

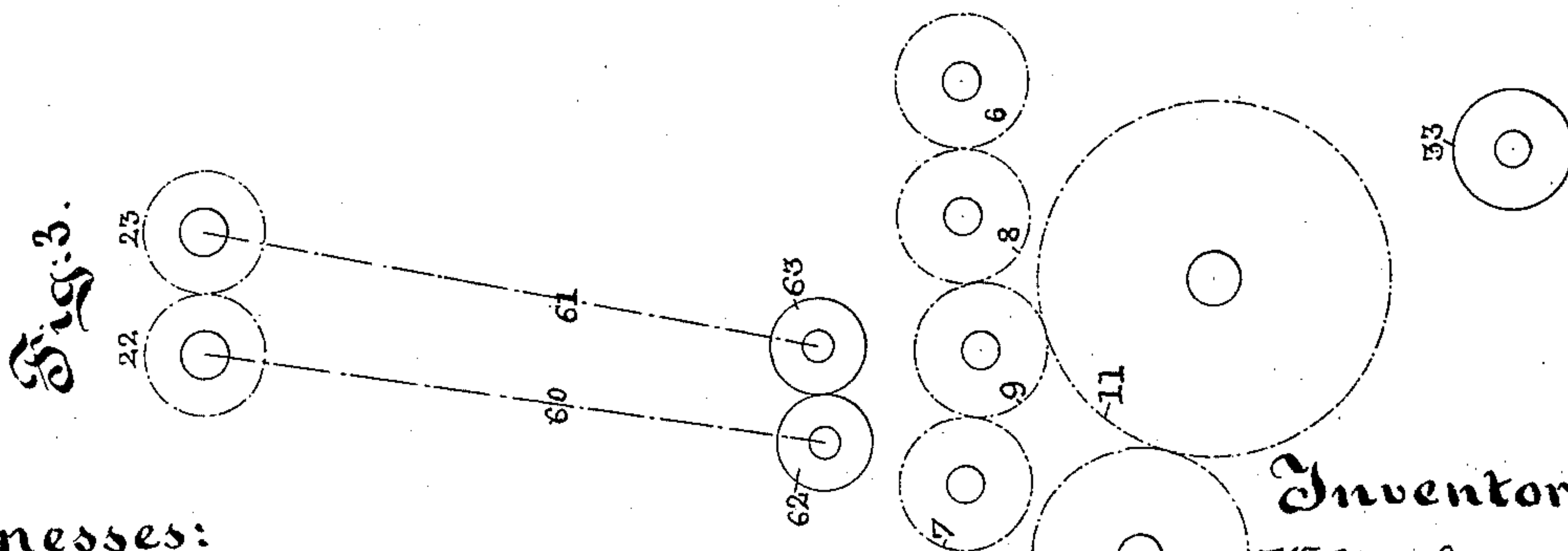
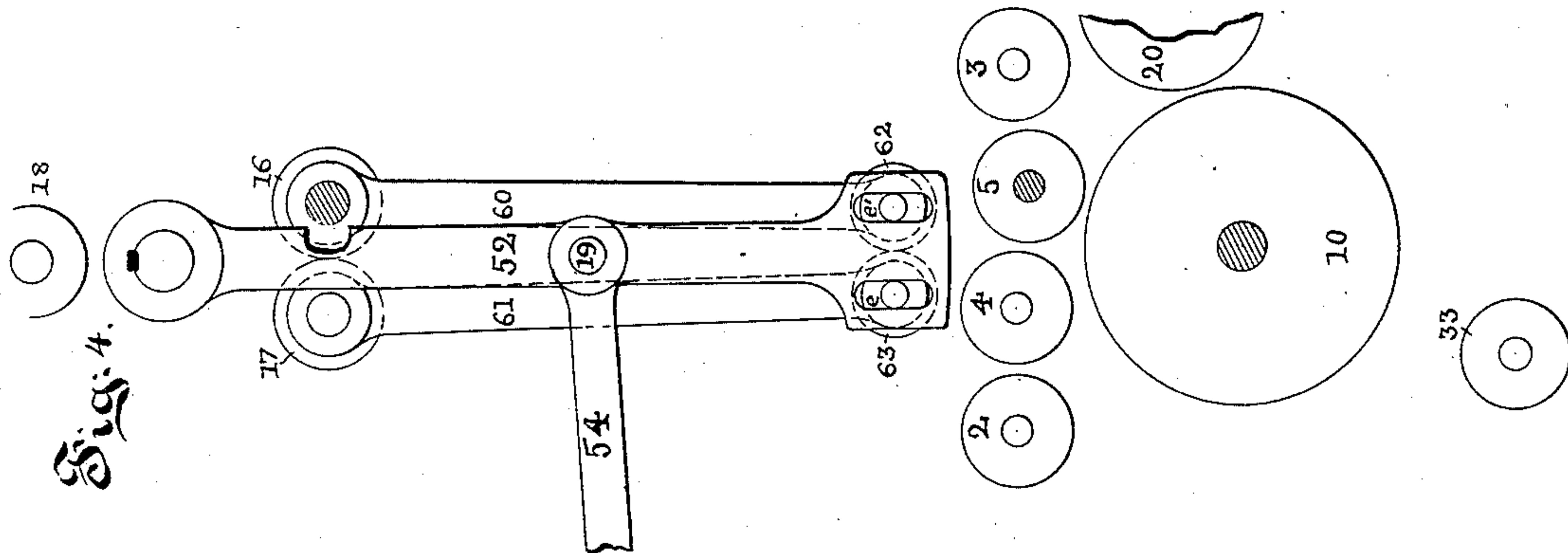
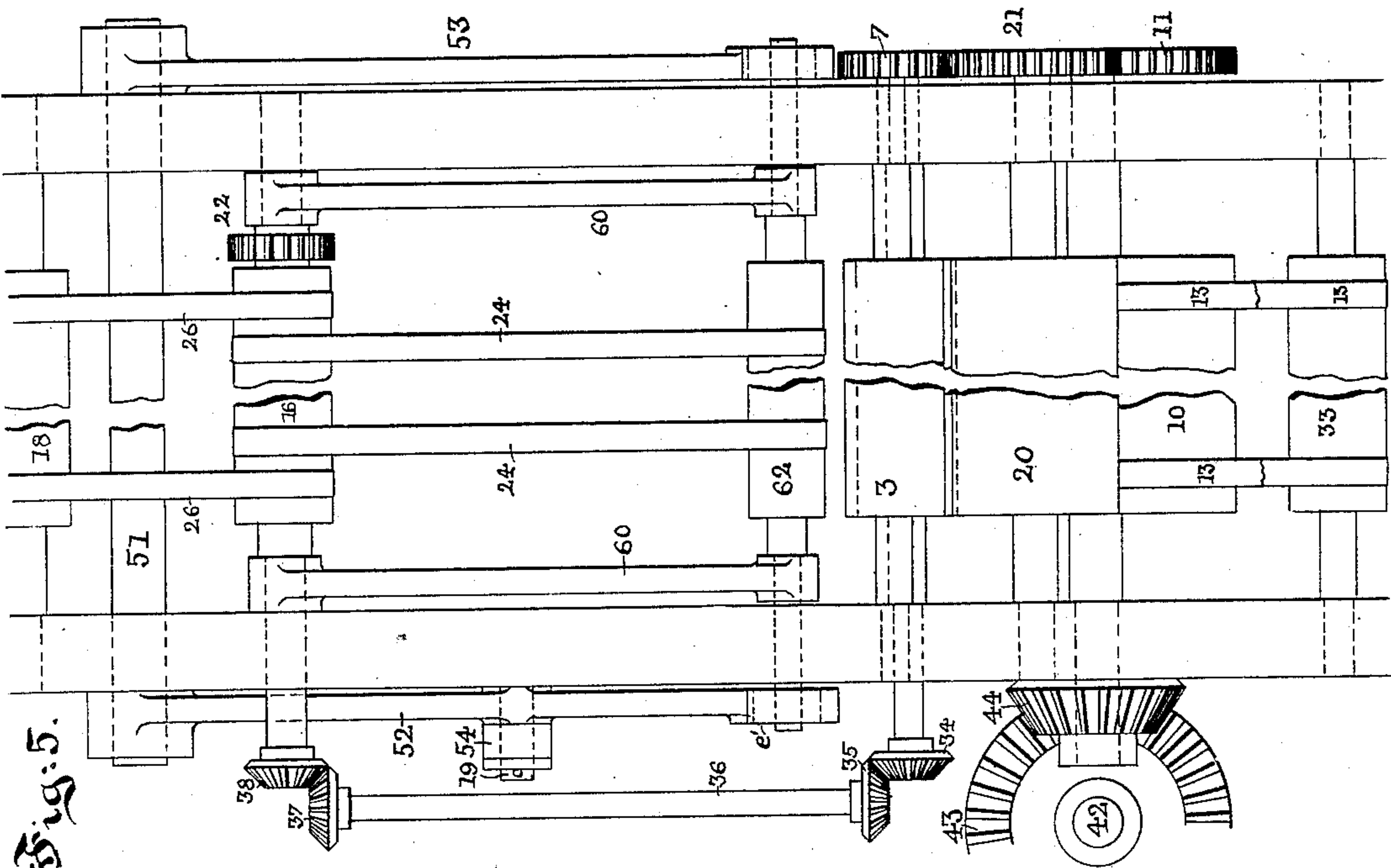
3 Sheets—Sheet 3.

W. SCOTT.

SHEET DELIVERY MECHANISM FOR PRINTING MACHINES.

No. 318,143.

Patented May 19, 1885.



Witnesses:

A. H. Gentry
C. R. Green.

Inventor:

Walter Scott.

By his Atty,

Edw. W. Smith, Jr.

UNITED STATES PATENT OFFICE.

WALTER SCOTT, OF PLAINFIELD, NEW JERSEY.

SHEET-DELIVERY MECHANISM FOR PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 318,143, dated May 19, 1885.

Application filed August 3, 1883. (No model.)

To all whom it may concern:

Be it known that I, WALTER SCOTT, a subject of the Queen of Great Britain, residing at Plainfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Sheet-Delivery Mechanisms for Printing-Machines, of which the following is a specification.

My invention relates to the delivery of sheets issuing from a web printing and severing mechanism, and has for its object to provide an improved apparatus for the association of two or more successively-produced sheets, and the delivery of such associated sheets to a folding mechanism or to a fly.

In the accompanying drawings I have shown such portions of a web-printing machine in connection with my improved delivery mechanism as are necessary to a proper understanding of my invention.

Referring, now, to the drawings, Figure 1 is a side elevation of the working parts of my delivery mechanism, the frame of the press not being shown. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a view of a portion of my delivery mechanism as seen from the side of the press opposite to that which is represented in Fig. 1, and in this view the gear-wheels referred to in the specification are shown as simple circles. Fig. 4 is a view of the associating mechanism, the same being shown on an enlarged scale; and Fig. 5 is an end view of my delivery mechanism.

As is usual in web-printing machines, the paper from which the sheets are cut is delivered from a roll, as 100, to a printing and impression cylinder, or to two sets of cylinders to print on both sides, (I have only shown the printing and impression cylinders, as 99 and 98, respectively,) and the impressions having been taken, the sheet is brought into the bite of the cutting-cylinders 97 and 96, where it is partially severed by the knife 1. The cutting-cylinders 96 and 97 are geared together, and the cylinder 96 is geared to the impression-cylinder by the intermediate gear-wheel, 50. These cutting-cylinders are one-half the diameter of the printing-cylinders, and consequently the full printed sheet will be cut or rather partially severed into halves. Upon the shaft which supports and carries the cutting-cylinder 96 is a beveled gear-wheel, 40,

which meshes with another beveled gear, 41, secured to one end of the longitudinal shaft 42. At the other end of this shaft 42 a beveled gear, 43, is arranged so as to engage with a beveled gear, 44, on the shaft of the cylinder 10, and thereby drive said cylinder. 2 and 4 and 3 and 5 are two pairs of rollers arranged above the cylinder 10, the roller 5 receiving motion through the gears 9 and 11 from the shaft of said cylinder, and transmitting it, through the gear-wheels 6, 7, and 8, to the rollers 2, 4, and 3.

20 is a roller arranged at a lower level than the roller 3, and motion is imparted to this roller 20 by the gear-wheels 11 and 21.

30 and 31 are guides serving in the usual manner, in conjunction with the rollers, to guide the paper in its proper path. A series of tapes, which I have marked 12, run over the rollers 3 and 80. Another set of tapes, which I have marked 13, runs over the rollers 32, 33, and 2, cylinder 10, and roller 20 on one side, and over the roller 81 on the other. A suitable folding mechanism may be arranged to receive the sheets, or they may be delivered directly to a fly.

Above the system of rollers 24 and 35 there is arranged a peculiar sheet-delivery mechanism so constructed that sheets are alternately delivered to the bite of the two pair of rollers 24 and 35. This alternate delivery is effected in the following manner: Two tape-rolls, 14 and 15, are mounted in fixed bearings in the press-frame, and these rolls help to support two series of tapes, as 26 and 27. The first of these series of tapes runs over the roller 14, near the cutting-cylinders, and then over the rollers 17 and 16 and over the auxiliary roll 18, as is shown in the drawings. The other series of tapes runs over the rolls 15 and 17, and the two series form a pathway leading from the cutting-cylinders to the rolls 16 and 17. The rolls 16 and 17 are geared together, as shown at 22 and 23, (see Fig. 3,) motion being imparted to one of the said rolls from the roller 5 by means of the beveled gears 34 35, shaft 36, and the beveled gears 37 and 38, as will be easily understood.

Upon the shafts of the rollers 16 and 17, at or near their ends, there are loosely hung the arms 60 and 61, which at their lower ends form the bearings for the rolls 62 and 63, the ar-

5 rangement being such that the arms hung on the shaft of the roller 16 support the roller 62, while the arms hung on the shaft of the roller 17 support the roller 63. Two series of tapes, 24 and 25, run over the rolls 16 and 62 and 17 and 63, respectively, as shown.

51 is a rock-shaft mounted in the frame of the press, above the rollers 16 and 17, and carrying at or near each end an arm, as 52 53. 10 These arms are rigidly secured to the shaft 51, and at their lower ends are provided with enlarged portions in which there are cut two parallel slots, as *e e'*. These slots receive and guide the overhanging ends of the trunnions 15 of the rollers 62 and 63. The arms 52 and 53 being fixed parallel to each other upon the rock-shaft 51, or, in other words, being fixed so that the center lines of both and the center line of the rock-shaft 51 shall be in one plane, 20 it will be seen that on giving an oscillating motion to the frame formed by the rock-shaft and its arms the rollers 62 and 63 will be bodily reciprocated, but that the distance between the rollers 16 and 62 and 17 and 63 will 25 not be changed, as the slots *e e'* serve to guide the rollers 62 and 63, but allow for the necessary movement of the trunnions therein, which motion is caused by the difference in the centers of motion of the rollers 16 and 17 and the 30 rock-shaft 51. The oscillating motion is imparted to the frame 51, 52, and 53 by means of an eccentric rod, 54, attached at 19 to the arm 52, and actuated by the eccentric 55, which is carried by the shaft of the plate or form cylinder. 35

The operation of the apparatus is as follows: The web of paper passes from between the printing-cylinders, where it is printed in the form of double sheets, to the cutting-cylinders, where, as before stated, the web is 40 partially divided into single sheets, but the sheets are not completely severed the one from the other. The web then enters the pathway formed by the tapes 26 and 27, and is carried 45 upward and over the roller 17 and into the bite of the rollers 16 and 17. These rollers run at a greater surface-speed than that at which the cutting-cylinders are driven, and it consequently follows that as soon as the leading 50 end of the partially-severed web enters the bite of said rollers its speed of travel will be increased, and the leading sheet will be entirely separated from the web. The movement of the oscillating frame 51 52 53 is so 55 timed that when the leading ends of the sheets

issue from between the rollers 62 and 63 they will be alternately presented, so as to enter the bite of the two pairs of rollers 2 4 and 3 5, those sheets received by the pair 3 5 being guided directly in between the rollers 3 and 60 20, while the sheets received by the rollers 2 and 4 are guided down to cylinder 10, passed partially around said cylinder, and finally guided in between the rollers 3 and 20. The length of the way which every alternate sheet 65 has to make in passing around cylinder 10 is so arranged and timed that the leading end of the sheet arrives at and enters between the rollers 3 and 20 at exactly the same time as the leading end of the following sheet which 70 is delivered by the direct path. This object can be accomplished in various ways, such as changing the size of the cylinder 10, or its position in relation to the other parts, or its speed may be changed. In this manner the 75 sheets cut in succession are associated in sets, the several sheets in each set being delivered in register to the rollers 3 and 20. After being thus associated in sets the sheets may be delivered to a folding mechanism or to a fly. 80 In the drawings I have represented the outlines of a folding mechanism to receive the sets of associated sheets.

Many modifications may be made in the details of construction without departing from 85 the principle of my invention—as, for instance, the tapes 26 and 27 may be arranged to pass not only over the rollers 16 and 17, but may be continued downward and around the rollers 62 and 63, thus doing away with 90 the separate sets of tapes marked 24 and 25. In this case an auxiliary roll would have to be employed to support the tapes 27, as will be easily understood.

The arrangement of the gearing for transmitting motion to the several rollers adjacent 95 to the cylinder 10 may also be varied.

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

The combination of the rollers 16 and 17, 100 loosely-suspended arms 60 and 61, carrying rollers 62 and 63, and the rock-shaft 51, carrying arms 52 and 53, provided with slots *e e'*, and the rollers 62 and 63, substantially as described.

WALTER SCOTT.

Witnesses:

EDWARD KENT, Jr.,
A. H. GENTNER.