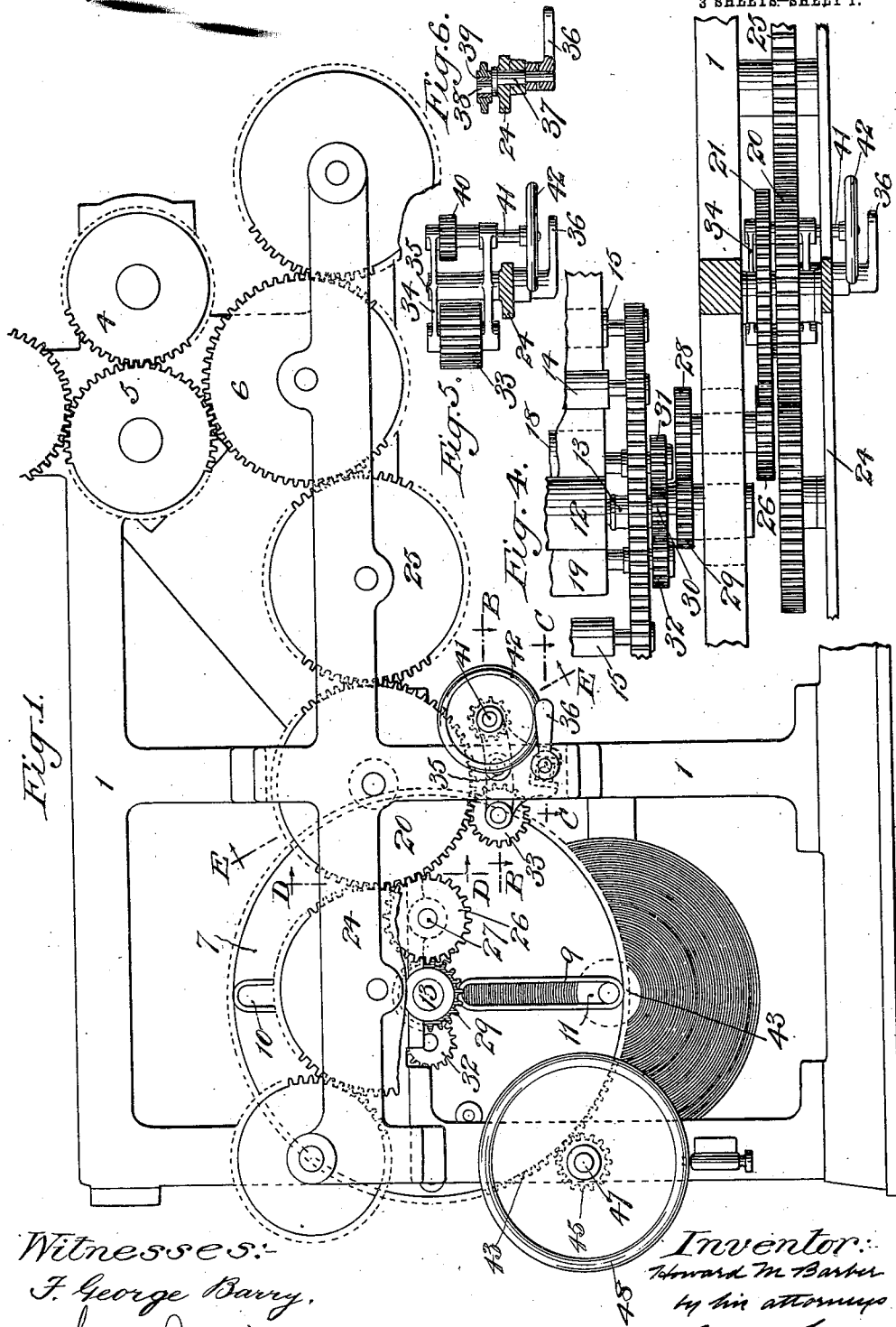


H. M. BARBER.
 OFFSET MECHANISM FOR PRINTING MACHINES.
 APPLICATION FILED SEPT. 21, 1909.

991,818.

Patented May 9, 1911.

3 SHEETS-SHEET 1.



Witnesses:
 F. George Barry.
 Henry Thorne.

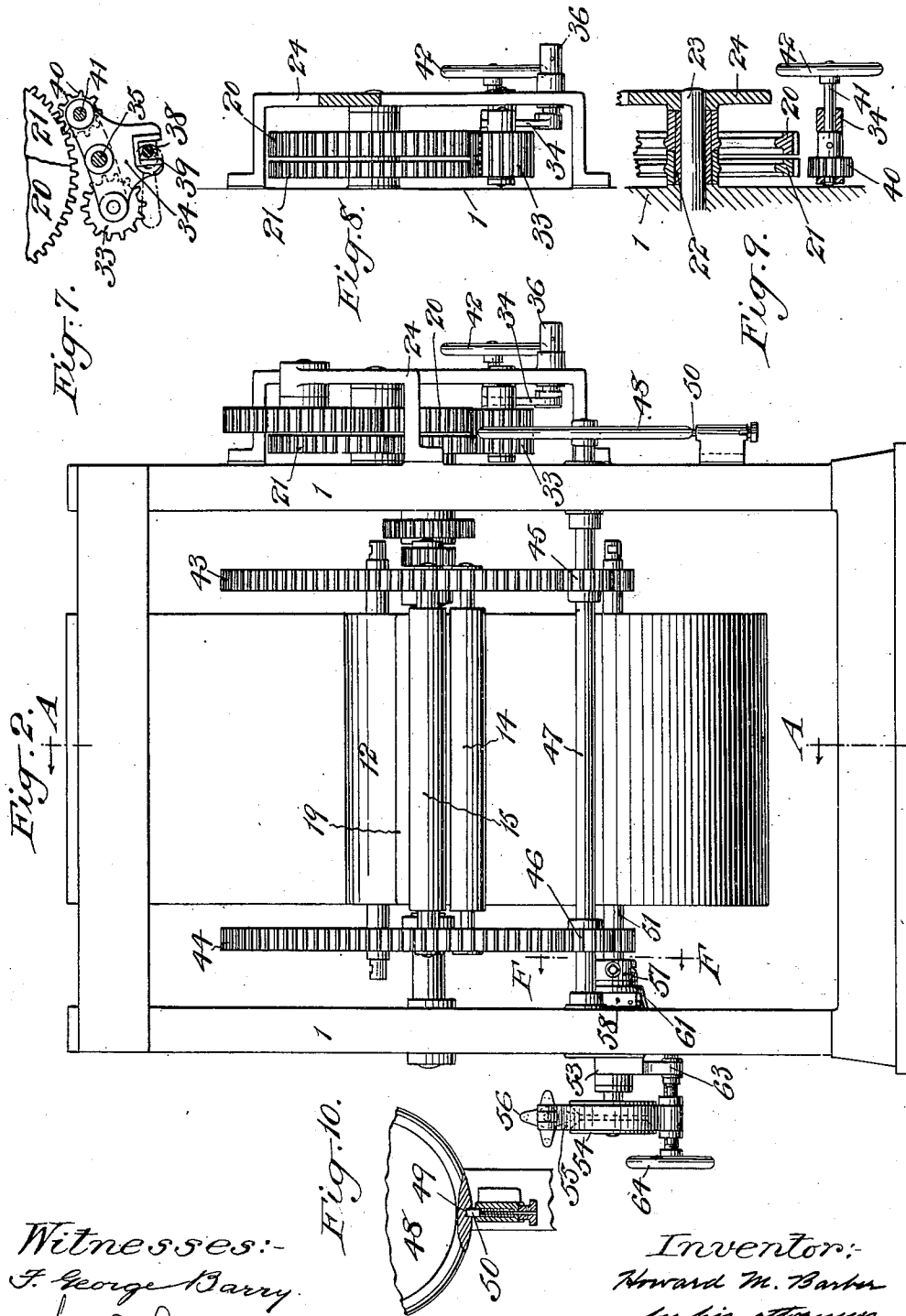
Inventor:
 Howard M. Barber
 by his attorney
 Bennett & Ward

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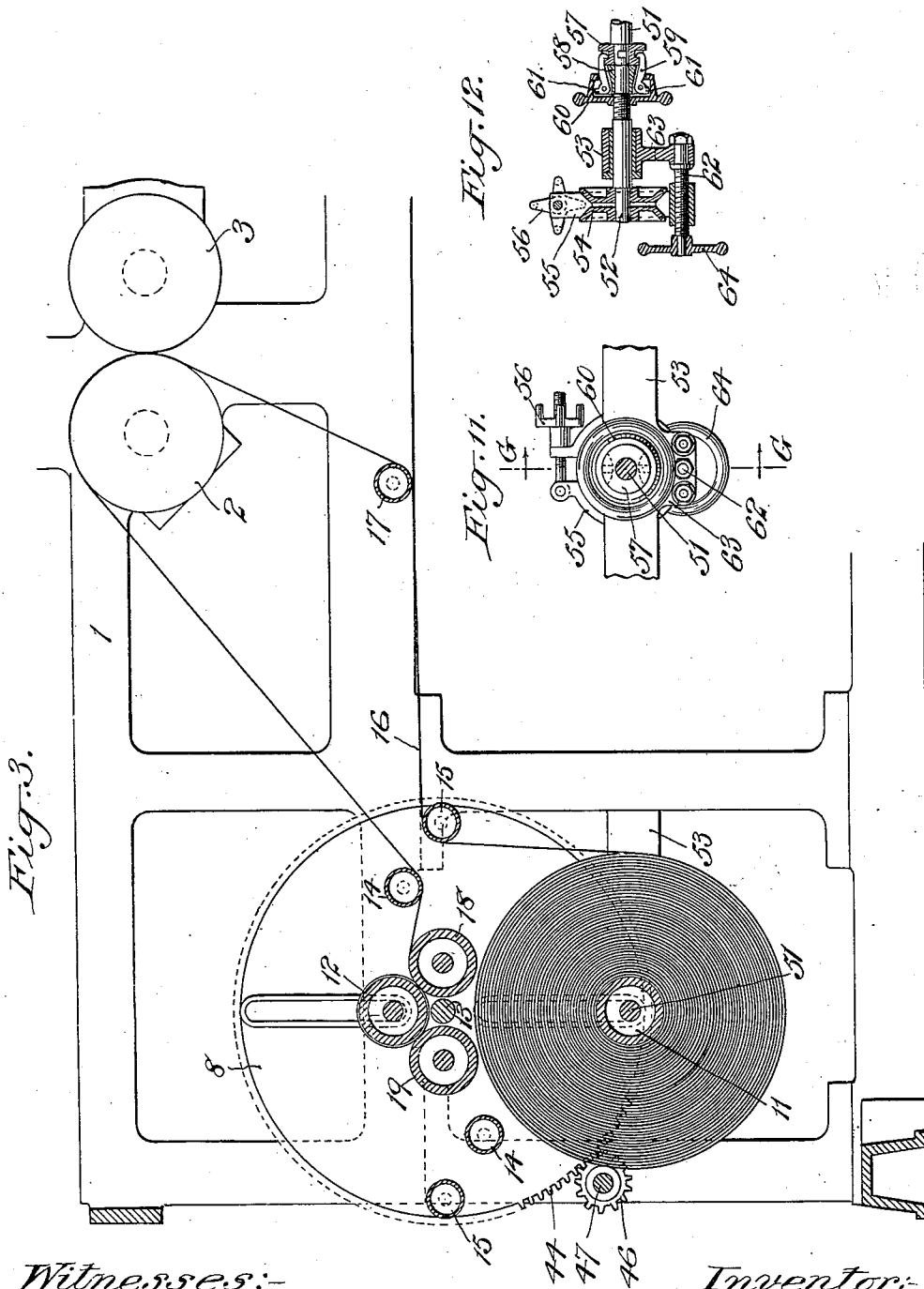
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UNITED STATES PATENT OFFICE.

HOWARD M. BARBER, OF STONINGTON, CONNECTICUT, ASSIGNOR TO C. B. COTTRELL & SONS COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

OFFSET MECHANISM FOR PRINTING-MACHINES.

991,818.

Specification of Letters Patent.

Patented May 9, 1911.

Application filed September 21, 1909. Serial No. 518,850.

To all whom it may concern:

Be it known that I, HOWARD M. BARBER, a citizen of the United States, and resident of Stonington, in the county of New London and State of Connecticut, have invented a new and useful Improvement in Offset Mechanism for Printing-Machines, of which the following is a specification.

This invention relates to offset mechanism for printing machines and has for its object to provide a novel and effective device for readily and easily transposing the positions of the delivery and take-up rolls of a traveling offset web whereby the empty core of the roll which has previously been used as the delivery roll may be brought into position on the rewinding rollers while the full roll, which has just been used as the take-up roll, may be brought into position out of engagement with the rewinding rollers ready for use as the delivery roll.

This invention also contemplates the use of a device for disconnecting the printing machine driving means from the rewinding rollers, at pleasure, and also for connecting a manually operated driving means to the rewinding rollers, so that they may be driven by hand as well as from the printing machine driving means.

My invention also contemplates means for connecting and disconnecting a friction device to the roll which is to be used as the delivery roll of the traveling offset web.

In the accompanying drawings, Figure 1 represents in side elevation that portion of a rotary web printing machine to which my invention is applied, Fig. 2 is a view in end elevation of the same, Fig. 3 is a longitudinal vertical section taken in the plane of the line A—A of Fig. 2, looking in the direction of the arrows, Fig. 4 is a detail plan view partially in section of the driving connection between the printing machine driving means and the traveling offset web driving means, Fig. 5 is a detail section taken in the plane of the line B—B of Fig. 1, looking in the direction of the arrows, Fig. 6 is a detail section taken in the plane of the line C—C of Fig. 1, looking in the direction of the arrows, Fig. 7 is a detail sectional view showing the throw-out device which connects the printing machine driving means to the traveling offset driving means in its disconnected position and the offset driving means

connected for manual operation, Fig. 8 is a detail section taken in the plane of the line D—D of Fig. 1, looking in the direction of the arrows, Fig. 9 is a detail section taken in the plane of the line E—E of Fig. 1, looking in the direction of the arrows, Fig. 10 is a detail view showing the device engaging the hand wheel of the roll carrying frame to lock it in position, Fig. 11 is a detail cross section taken in the plane of the line F—F of Fig. 2, looking in the direction of the arrows, and Fig. 12 is a section taken in the plane of the line G—G of Fig. 11, looking in the direction of the arrows.

The side frames of the machine are denoted by 1 and one of the impression cylinders around which the traveling offset web is passed is denoted by 2 and its form cylinder by 3. The form cylinder gear 4 is driven from the impression cylinder gear 5 which, in turn, is driven from a gear 6 of the printing machine driving mechanism.

The sides 7 and 8 of a rotary frame are each provided with a pair of diametrically opposed radially elongated slots 9, 10, in which are slidably and rotatably mounted the journals of the cores 11, 12, of the rolls which are to be used respectively as the delivery and take-up rolls of the traveling offset web in the position which the parts are shown in the drawings. This rotary frame for supporting the delivery and take-up rolls of the traveling offset web is supported upon a shaft 13 mounted in suitable bearings in the side frames 1 of the machine. This rotary frame is further provided with pairs of diametrically opposed cross rollers 14, 14, 15, 15, rotatably mounted in the sides 7 and 8 of the frame. The offset web 16 leads from the delivery roll over one of the rollers 15, from thence under a cross roller 17 rotatably mounted in the side frames 1, from thence over the impression cylinder 2 and from thence under one of the cross rollers 14. A pair of diametrically opposed rewinding rollers 18, 19, are rotatably mounted in the sides 7 and 8 of the rotary frame in close proximity to the shaft 13, upon which rewinding rolls, the take-up roll of the offset web rests. As the offset web 16 leaves the roller 14 it passes onto the core 12 between the core and the rewinding rollers 18, 19.

The outer ends of the radially elongated

slots 9 serve as supports for the journals of the delivery roll core 11 so that the rewinding rollers 18, 19, only act upon the take-up roll of the traveling offset web.

5 The rewinding rollers are driven from the printing machine driving means through a throw-out device as follows:—Fast and loose gears 20, 21, of the same size are mounted upon a hollow shaft 22 surrounding a stud
10 axle 23 supported by one of the side frames 1 and a bracket 24. The fast gear 20 is driven from the gear 6 through an intermediate gear 25. The loose gear 21 meshes with a gear 26 fast on a shaft 27 and a gear 28
15 also fast on the shaft 27 meshes with a gear 29 concentric with the rotary frame shaft 13. A gear 30 fixed with respect to the gear 29 meshes with gears 31, 32, fixed to the shafts of the rewinding rollers 18, 19.

20 The throw-out device for connecting and disconnecting the fast and loose gears 20, 21, includes a clash gear 33 arranged to be brought out of mesh with both of the gears 20, 21, at the same time, which clash gear 33
25 is mounted in a swinging frame 34 pivoted on a stud 35 carried by the bracket 24. This frame 34 is rocked for bringing the clash gear 33 into and out of engagement with the fast and loose gears 20, 21, by an eccentric device, the handle of which is denoted
30 by 36, its stem which is mounted in the frame 24 by 37 and its eccentric pin by 38. This eccentric pin is located in a box 39 slidably engaged with the rocking frame 34 so that
35 as the handle 36 is moved in one direction, the clash gear will be brought into mesh with the gears 20, 21, and when the handle is moved in the other direction, the clash gear will be brought out of engagement with the
40 said gears 20, 21.

Means carried by this throw-out device are also provided for manually driving the rewinding rollers, as follows: A gear 40 is
45 fixed to a hand wheel shaft 41 rotatably mounted in the rocking frame 34 upon the opposite side of the pivot 35 from the clash gear 33, which gear 40 is arranged in position to be brought into engagement with the loose gear 21 when the clash gear 33 is
50 brought out of engagement with the gears 20 and 21 and which will be brought out of engagement with the loose gear 21 when the clash gear 33 is brought into engagement with the gears 20, 21.

55 The hand wheel for rotating the gear 40 is denoted by 42.

The means which I employ for rotating the offset roll carrying frame for transposing the rolls, is as follows:—The sides 7 and
60 8 of the frame are provided with gears 43, 44, which mesh with pinions 45, 46, fixed to a cross hand wheel shaft 47 mounted in the side frames 1 of the machine. The hand wheel 48 of this shaft is provided with a
65 notch 49 arranged to receive the nose of the

latch 50 carried by one of the side frames 1 for locking the wheel and thereby the frame against rotary movement after the frame has been rotated into position to transpose the delivery and take-up rolls. 70

The device for applying the desired retarding friction to the roll being used as the delivery roll of the traveling offset web, may be of well known or approved form, a short description of which herewith follows, 75 the novel feature being the means for bringing the friction device into and out of engagement with one of the journals of the delivery roll core when the same has been brought into position for use. 80

The journal 51 of the core 11 of the roll being used as the delivery roll is brought into alinement with a shaft 52 rotatably and slidably mounted in a stationary bracket 53 fixed to one of the side frames 1 of the 85 machine. The shaft 52 is provided with the usual brake pulley 54 and split band 55 with its tension adjusting nut 56.

The means for coupling the friction device to one end of the core journal 51 is as 90 follows: A recessed coupling member 57 is fixed to the journal 51 and the other coupling member 58 is fixed to the adjacent end of the shaft 52. This coupling member 58 is provided with latches 59 arranged to be 95 brought into and out of engagement with the recesses in the coupling member 57 by a nut 60 having a screw threaded engagement with the shaft 52. When this nut 60 is screwed inwardly and the shaft 52 is in alinement 100 with the journal 51, it will force the latches 59 into locking engagement with the coupling member 57. When the nut 60 is screwed outwardly, it will first release the latches 59 and then, by engagement with tail 105 pieces 61 on the latches, will swing them out of their interlocked engagement with the coupling member 57.

The shaft 52 may be adjusted toward and away from the end of the journal 51 by a 110 hand screw 62 having a screw threaded engagement with the split brake band 55, which screw is rotatably carried by a depending arm 63 of the bracket 53. The hand wheel of this screw 62 is denoted by 64. 115

In operation, supposing the parts to be in the position in which they are shown in the drawings, with the throw-out device in position to connect the printing machine driving means with the rewinding roller 120 driving means; the offset web will be gradually wound upon the take-up roll at the desired speed by the rewinding rollers 18, 19, the proper retarding friction being applied to the delivery roll. After the web 125 has been wound off from the delivery roll onto the take-up roll, the two rolls may be transposed for continuing the use of the offset mechanism without removing the rolls as follows:—The latch 50 is disengaged 130

from its locking engagement with the hand wheel 48. The hand wheel is then rotated a sufficient number of times to rotate the frame one-half a revolution. This will bring the journals of the roll which had been the take-up roll but is now to be the delivery roll, to the outer end of the elongated slots in the sides of the frame and thus bring the roll out of engagement with the rewinding rollers. At the same time, the core of the roll which was the delivery roll but which is now to be the take-up roll, will travel inwardly along its elongated slots until the core rests upon the rewinding rollers. The rotary roll supporting frame may then be locked in this position by bringing the latch 50 into interlocking engagement with the hand wheel 48. The offset web may then be rethreaded ready for continuing the operation of the machine.

If it is desired that the offset web rolls remain inoperative, the throw-out device may be manipulated as hereinbefore described for disconnecting the clash gear 33 from the fast and loose gears 20, 21. This will permit the printing machine to be moved without disturbing the offset mechanism.

If it is desired to manually operate the offset web for drawing the same taut or for making any necessary adjustments while the printing machine is out of operation, this can be accomplished by throwing the hand wheel gear 40 into mesh with the loose gear 21 and thus driving the rewinding rolls by hand as hereinabove set forth.

It will be seen that by mounting the offset web, delivery and take-up rolls in a rotary frame or carrier which is revolved in a vertical plane, the rolls may be readily and quickly transposed without disturbing the other portions of the machine in any particular and without a separate handling of the rolls.

What I claim is:—

1. In a printing machine, a traveling web offset device comprising a rotatable frame, rewinding rollers and delivery and take-up rolls, all mounted on said frame, and means for rotating the frame to bring one roll into and the other roll out of engagement with the rewinding rollers at pleasure.

2. In a printing machine, a traveling offset web device comprising a rotatable frame, rewinding rollers and delivery and take-up rolls, all mounted on said frame, means for rotating the frame to bring one roll into and the other roll out of engagement with the rewinding rollers at pleasure and means for locking the frame against movement when in the desired adjustment.

3. In a printing machine, a traveling offset web device comprising a rotatable frame, rewinding rollers and delivery and take-up rolls, all mounted on said frame, means for

rotating the frame to bring one roll into and the other roll out of engagement with the rewinding rollers at pleasure and means for driving the rewinding rollers from the printing machine.

4. In a printing machine, a traveling offset web device comprising a rotatable frame, rewinding rollers and delivery and take-up rolls, all mounted on said frame, and means for rotating the frame to bring one roll into and the other roll out of engagement with the rewinding rollers at pleasure and means for driving the rewinding rollers from the printing machine including a manually operated throw-out device.

5. In a printing machine, a traveling offset web device comprising a rotatable frame, rewinding rollers and delivery and take-up rolls, all mounted on said frame, means for rotating the frame to bring one roll into and the other roll out of engagement with the rewinding rollers at pleasure and means for driving the rewinding rolls from the printing machine or manually at pleasure.

6. In a printing machine, a rotatable frame, rewinding rollers and delivery and take-up rolls, all mounted on said frame, means for rotating the frame to bring one roll into and the other roll out of engagement with the rewinding rollers at pleasure, and means for driving the rewinding rollers from the printing machine including fast and loose gears and a clash gear arranged to be brought into and out of engagement with the fast and loose gears.

7. In a printing machine, a traveling offset web device comprising a rotatable frame, rewinding rollers and delivery and take-up rolls, all mounted on said frame, means for rotating the frame to bring one roll into and the other roll out of engagement with the rewinding rollers at pleasure, means for driving the rewinding rollers from the printing machine including fast and loose gears, a clash gear arranged to be brought into engagement with the fast and loose gears, and a hand wheel for manually driving the rewinding rolls, said hand wheel having a pinion arranged to be brought into engagement with the loose wheel when the clash gear is brought out of engagement with the said fast and loose gears.

8. In a printing machine, a traveling offset web device comprising a rotatable frame, delivery and take-up rolls mounted thereon, means for rotating the frame for transposing the positions of the rolls and a friction device arranged to be brought into and out of engagement with the roll being used as the delivery roll.

9. In a printing machine, a traveling offset web device comprising a rotatable frame having oppositely arranged radially elongated slots, rewinding rollers mounted on the frame, delivery and take-up rolls having

their trunnions slidably and rotatably
mounted in said slots and means for rotat-
ing the frame for bringing one of the rolls
into engagement with the rewinding rollers
5 and the other roll out of engagement with
the rewinding rollers by gravity.

In testimony, that I claim the foregoing

as my invention, I have signed my name in
presence of two witnesses, this twentieth day
of Sept., A. D. 1909.

HOWARD M. BARBER.

Witnesses:

A. R. STILLMAN,

G. BURDICK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
