Oct. 5, 1937. H. A. W. WOOD 2,095,019

SIDE REGISTERING MEANS FOR WEB ROLLS

Original Filed July 27, 1934 3 Sheets-Sheet 1

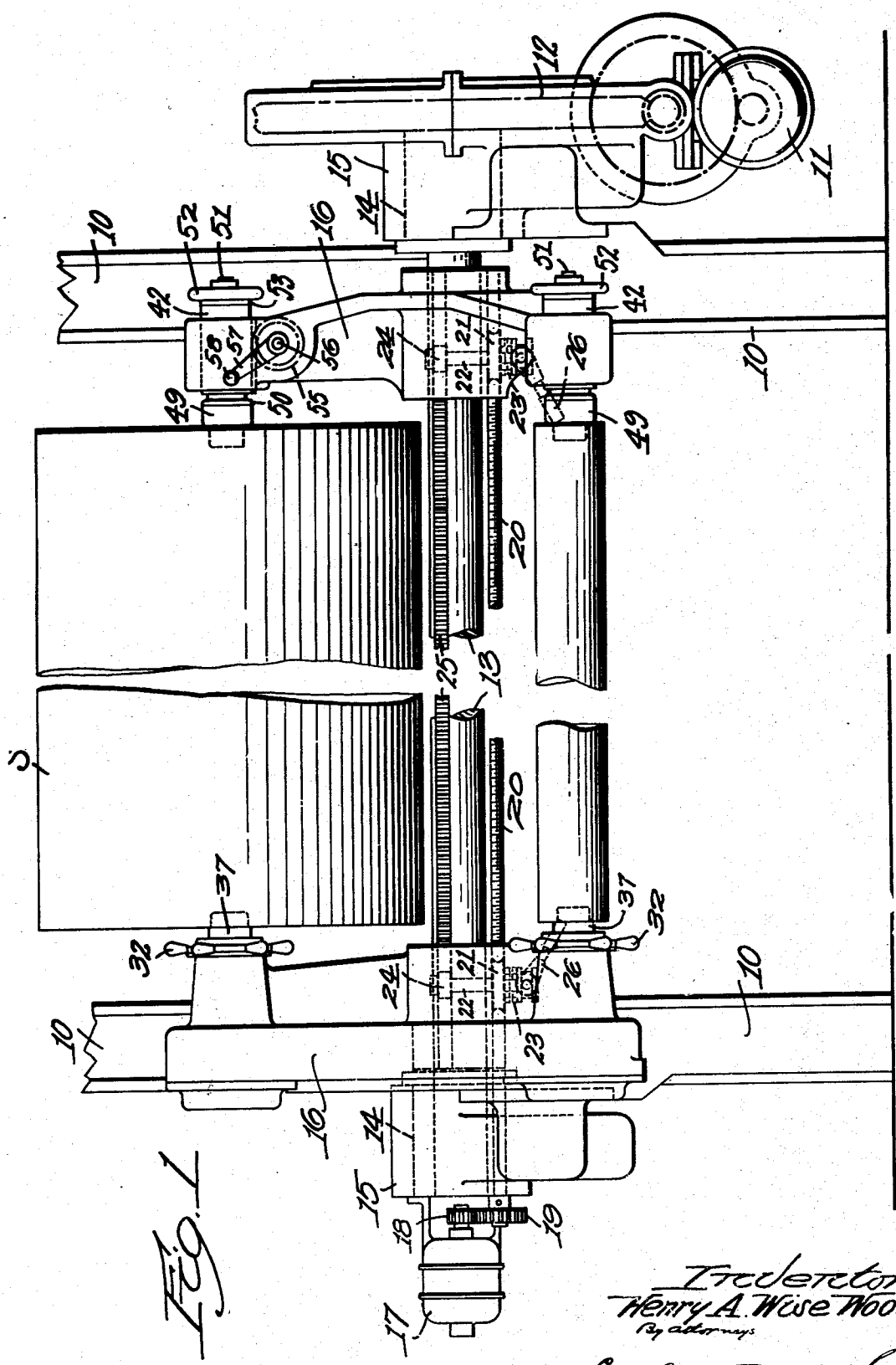


Fig. 1

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SIDE REGISTERING MEANS FOR WEB ROLLS

Original Filed July 27, 1934 3 Sheets-Sheet 2

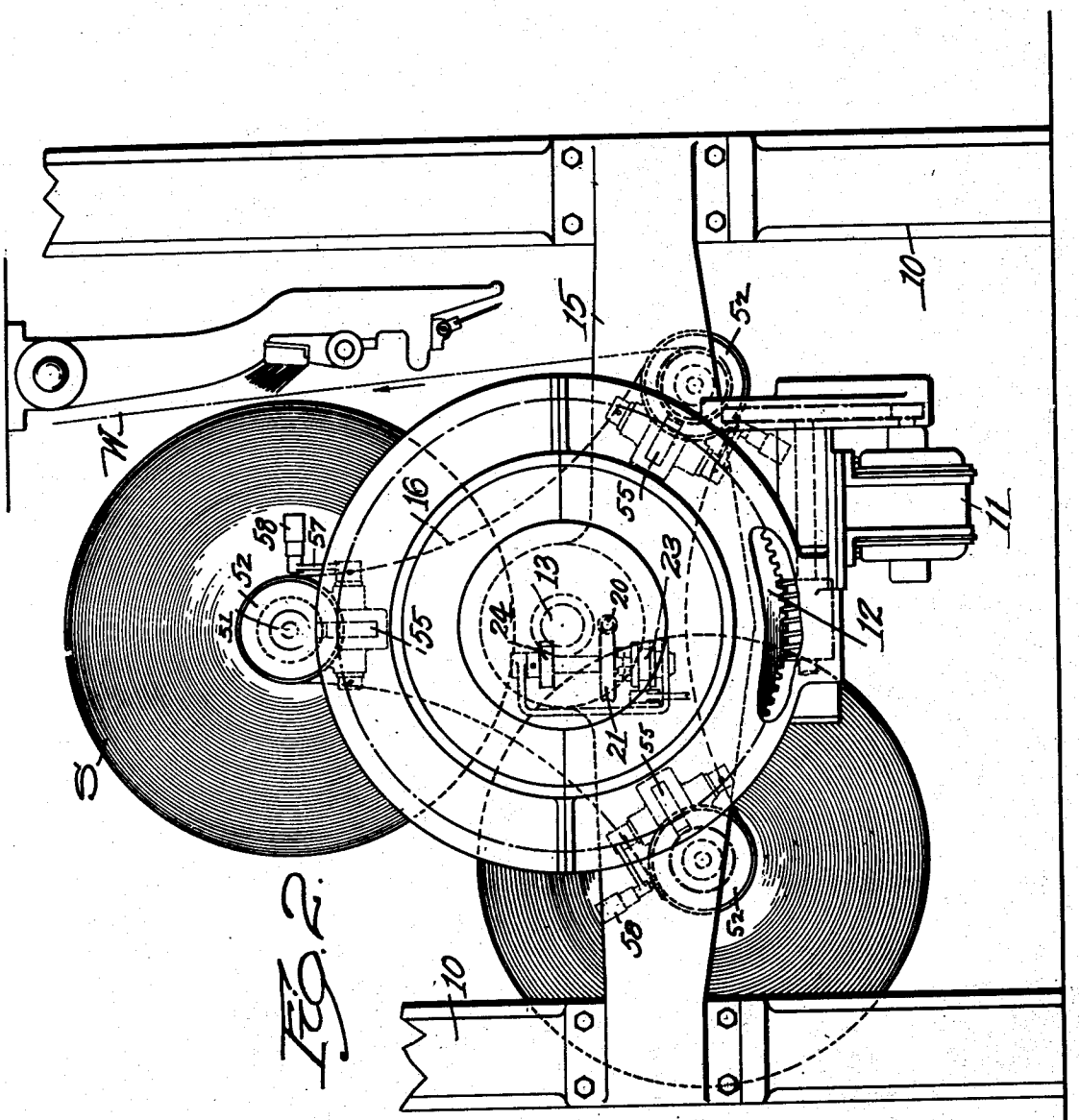


Fig. 2.

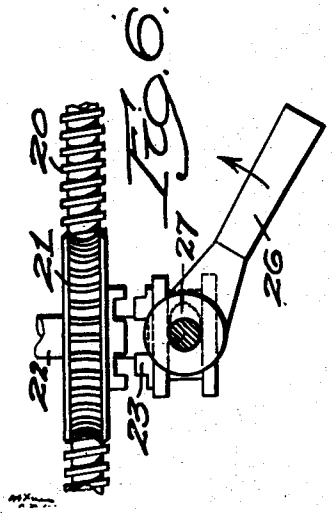


Fig. 6.

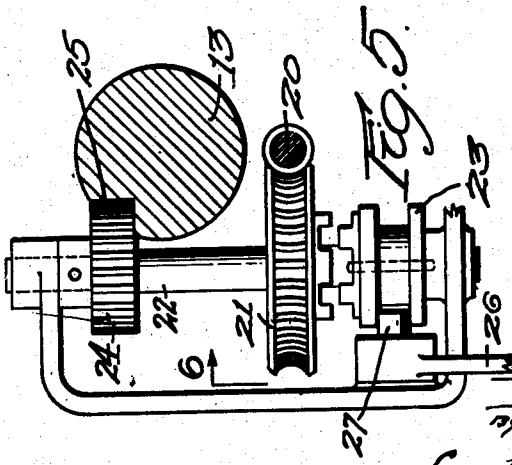


Fig. 5.

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SIDE REGISTERING MEANS FOR WEB ROLLS

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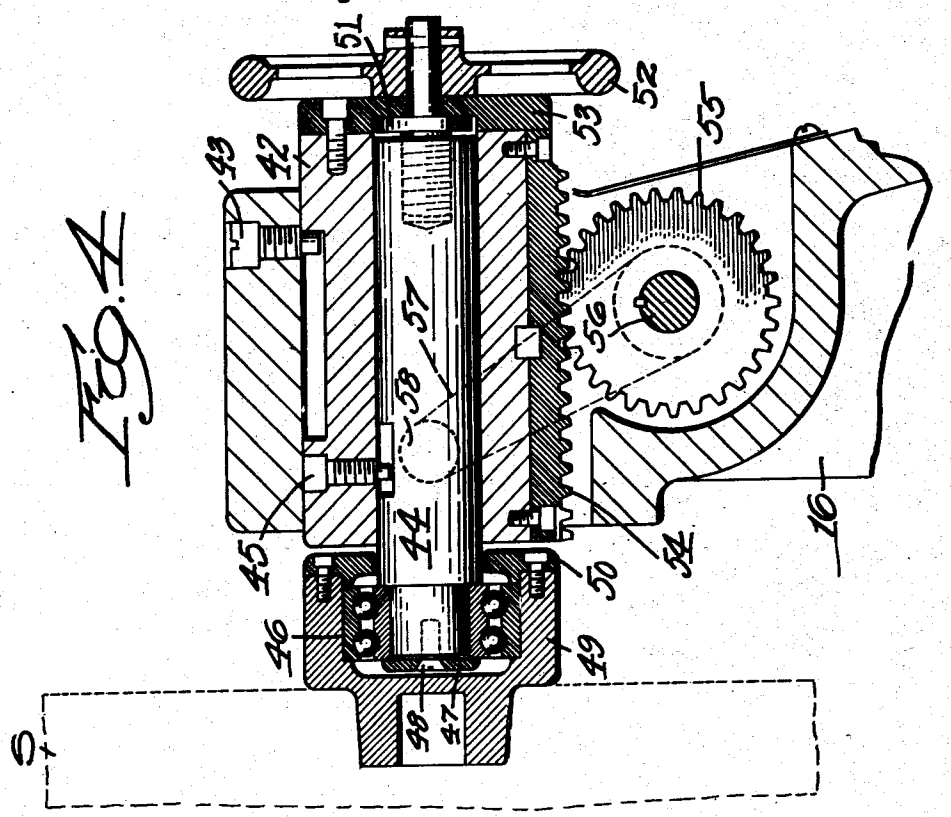


Fig. 4.

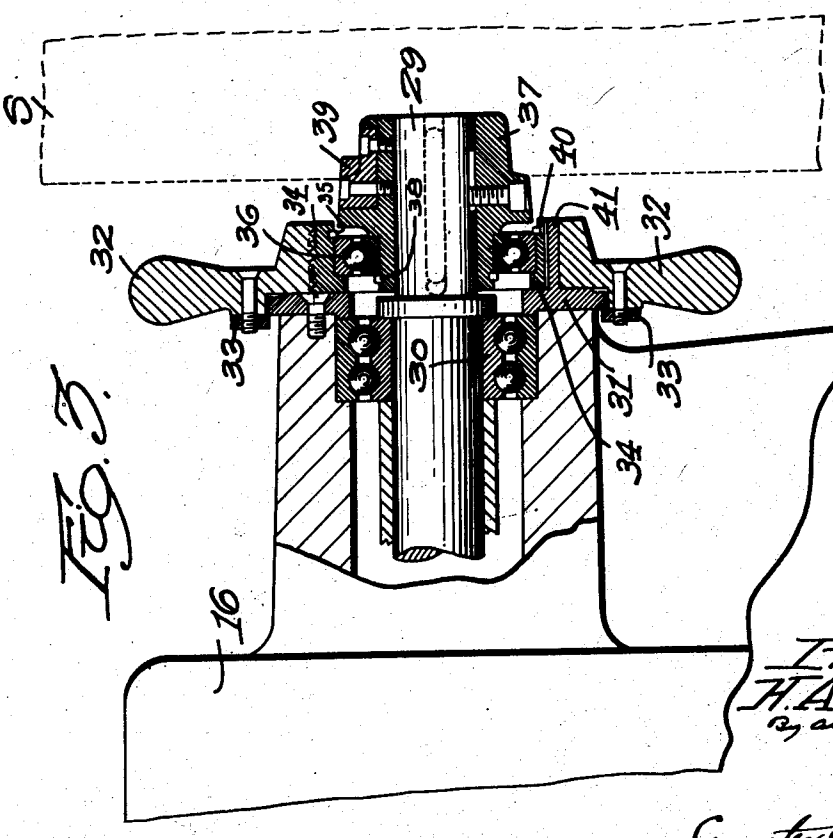


Fig. 5.

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Patented Oct. 5, 1937 2,095,019

UNITED STATES PATENT OFFICE

2,095,019

SIDE REGISTERING MEANS FOR WEB ROLLS

Henry A. Wise Wood, New York, N. Y., assignor to Wood Newspaper Machinery Corporation, New York, N. Y., a corporation of Virginia

Application July 27, 1934, Serial No. 737,201
Renewed March 3, 1937

4 Claims. (Cl. 242—68)

The principal objects of this invention are to provide a positive side registering means for use on the reel carrying a web roll into which no dependence will be placed on springs for forcing the roll endwise; to provide a sturdy powerful mechanism so that the roll can be moved easily in each pair of spindles without disturbing the position of the spiders, and to provide means that will accurately pre-register a web roll prior to the splicing operation.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which

Fig. 1 is a side elevation of a rotatable magazine reel for carrying a plurality of web rolls showing this invention applied thereto;

Fig. 2 is an end view of the same;

Fig. 3 is a vertical central sectional view of the spindle chuck supporting device on one of the spiders;

Fig. 4 is a similar view of the corresponding spindle chuck supporting device on the opposite spider, and

Figs. 5 and 6 are details on enlarged scale.

This invention is shown as applied to a web splicing device which speeds up the fresh roll by a drive through the central axis thereof.

The machine embodies a frame 10 carrying a motor 11 which, through suitable speed reducing gearing 12, drives the main shaft 13 of the reel. The shaft carries secured thereto two bearings 14 which are rotatably mounted in corresponding brackets 15 on the two ends of the frame, which in itself constitutes the sub-structure of the press.

On the shaft 13 are mounted two spiders 16 fixed in angular relation to the shaft but adapted to be moved longitudinally of the shaft to provide for rolls of different widths. The shifting of the spiders 16 individually or together is accomplished by means of a motor 17, which is mounted on one of the bearings 14 for the shaft. This motor is supplied with electrical power by well known means, not illustrated, to rotate the armature of the motor and transmit power from a pinion 18 on the motor shaft to a gear 19 on a threaded member or shaft 20, the threads of which mesh with two worm wheels 21. These worm wheels are rotatably mounted on short shafts 22 and adapted to be connected thereto by a clutch 23 in each case. The shafts 22 are rotatably carried in the two spiders and have pinions 24 secured thereto. These pinions, in both cases, mesh with a rack 25 which extends across the machine and is embedded in the shaft 13.

In an obvious manner these pinions 24 and the rack 25 serve to walk the spiders longitudinally along the shaft 13 when power is applied to the shafts 22, by the connection of the clutches. Suitable handles 26 are provided with eccentric projections 27 for shifting the clutches 23. The motor 17 therefore can be used to rotate the threaded member 20 and by the engagement of either or both clutches 23, either spider or both may be moved longitudinally to provide for rolls of different widths or to place them in different locations for purposes to be understood readily.

As stated, the invention is shown herein as applied to that type of splicing device in which the power for rotating the fresh web roll S may be applied through a spindle shaft 29 arranged to drive the fresh roll through its center or for braking on emergency stops. This shaft 29 rotates with the reel and extends through or into the center of the spindle chuck 37 mounted on the left-hand spider, as shown. This spindle shaft is carried in a ball bearing 30. The spindle 29 is held longitudinally by the securing of the ball bearing 30 in the spider by a seal ring 31 and a stop on the other end of the shaft 29, not shown. An overhanging portion of the seal 31 acts as a locating member for an adjusting hand wheel 32 by the use of a ring 33 secured thereto.

The threaded interior of the adjusting wheel 32 cooperates with a threaded sleeve 34 which, through a retainer 35, is secured to the outer race of a ball bearing 36. Thus any rotation of the adjusting wheel 32 causes the sleeve 34 to move to the right or left as viewed in Fig. 3. This movement will move the ball bearing 36 and spindle chuck 37 in a like manner since the inside race of the ball bearing 36 is secured by a retainer 38 to the spindle chuck 37. The spindle chuck 37 is splined to the spindle shaft 29 and is provided with a key 39 which may be used to cooperate with a keyway in the inside of the core of the paper roll S. The sleeve 34 has a milled out portion 40 accommodating a projection 41 extending from the seal plate 31 and thereby secures the sleeve 34 against any rotation due to friction in the ball bearing 36 or to rotation of the adjusting wheel 32.

Fig. 4 shows a latching spindle at the other end of the reel where it is not necessary to provide a splined chuck carrying a key. A cylinder 42 is mounted in an arm of the spider and permitted certain longitudinal motion by a pilot screw 43. Inside the cylinder 42 is mounted a plunger 44 which is also permitted a limited

amount of longitudinal motion by a pilot screw 45.

The outer end of the plunger 44 mounts a ball bearing 46 secured thereon by a washer 47 and screw 48. The outer race of the ball bearing 46 carries the spindle chuck 49 secured thereto by a seal 50. This provides a rotatable mounting for one end of the paper roll S. The inner end of the plunger 44 carries a threaded hole for cooperation with a stud 51. The outer end of the stud 51 carries a hand wheel 52 pinned thereto such that the rotation of this wheel will move the plunger 44 longitudinally. A seal 53 prevents end motion of the stud 51.

In order to obtain a fast motion of the cylinder 42, a rack 54 is secured thereto and meshes with a pinion 55 which is secured to a shaft 56, the latter being rotatably mounted in the spider and provided with an operating arm 57. A handle 58 on the operating arm 57 carries a retractable dowel pin for fitting in appropriate holes to fix the cylinder 42 in the desired positions.

It is quite evident that the roll S may be shifted to correct the side register with the running web W prior to its being spliced thereto without the necessity of moving the spiders 16. This is done in a positive way which puts no dependence on springs which may or may not hold the roll accurately in longitudinal position.

Having described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:—

1. In a side registering device for web rolls, the combination with a reel comprising a pair of spiders, each having a spindle chuck for supporting the opposite ends of a web roll, screw threaded means for adjusting one of said chucks axially, and a shaft extending into said chuck for driving the roll positively through the center, said chuck having a key for driving cooperation with the web roll.

2. The combination with a spindle chuck for supporting and driving one end of a web roll, of a support therefor, a shaft extending through the support and into the chuck, a ball bearing for the shaft, a seal for engaging the end of the outer race of the ball bearing, a hand wheel, means connected with said hand wheel for rendering it rotatable but not movable longitudinally, a threaded sleeve inside the wheel and in threaded relationship therewith, and means for connecting the sleeve with the chuck, whereby the rotation of the wheel will move the chuck in an axial direction.

3. In a side registering mechanism for a web roll, the combination of a spindle chuck for supporting one end of the web roll, a shaft extending into the spindle chuck, a bearing for the shaft, a sealing plate at the end of the bearing secured in position, a hand wheel having a ring thereon engaging behind the seal plate to permit the hand wheel to rotate on the center thereof, a sleeve inside the wheel having a screw-thread for connecting it therewith, a ball bearing between the sleeve and the spindle chuck, and retainers for holding the inner race of the ball bearing to the spindle chuck and the outer race of the ball bearing to the sleeve, whereby the rotation of the wheel will move the sleeve and consequently the spindle in an axial direction for adjustment.

4. In a side registering mechanism for web rolls, the combination with a reel comprising two spiders, each having a series of spindle chucks thereon, a shaft on which the spiders are slidably mounted, a motor mounted on the shaft, a threaded member connected with the motor to be rotated thereby and extending longitudinally with respect to the shaft, each of said spiders having a shaft, a worm wheel loose on each of the latter shafts and both engaging the threaded member, a hand operated clutch for securing each worm wheel to its shaft, a pinion on each of the second shafts, a fixed longitudinal rack with which said pinions engage, whereby either or both spiders can be moved along the threaded member, means on one spider for moving its spindle chuck thereon in an axial direction, and means connected with the opposite spindle for adjusting it in an axial direction to side register the roll with respect to the web and hold it in its adjusted position.

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