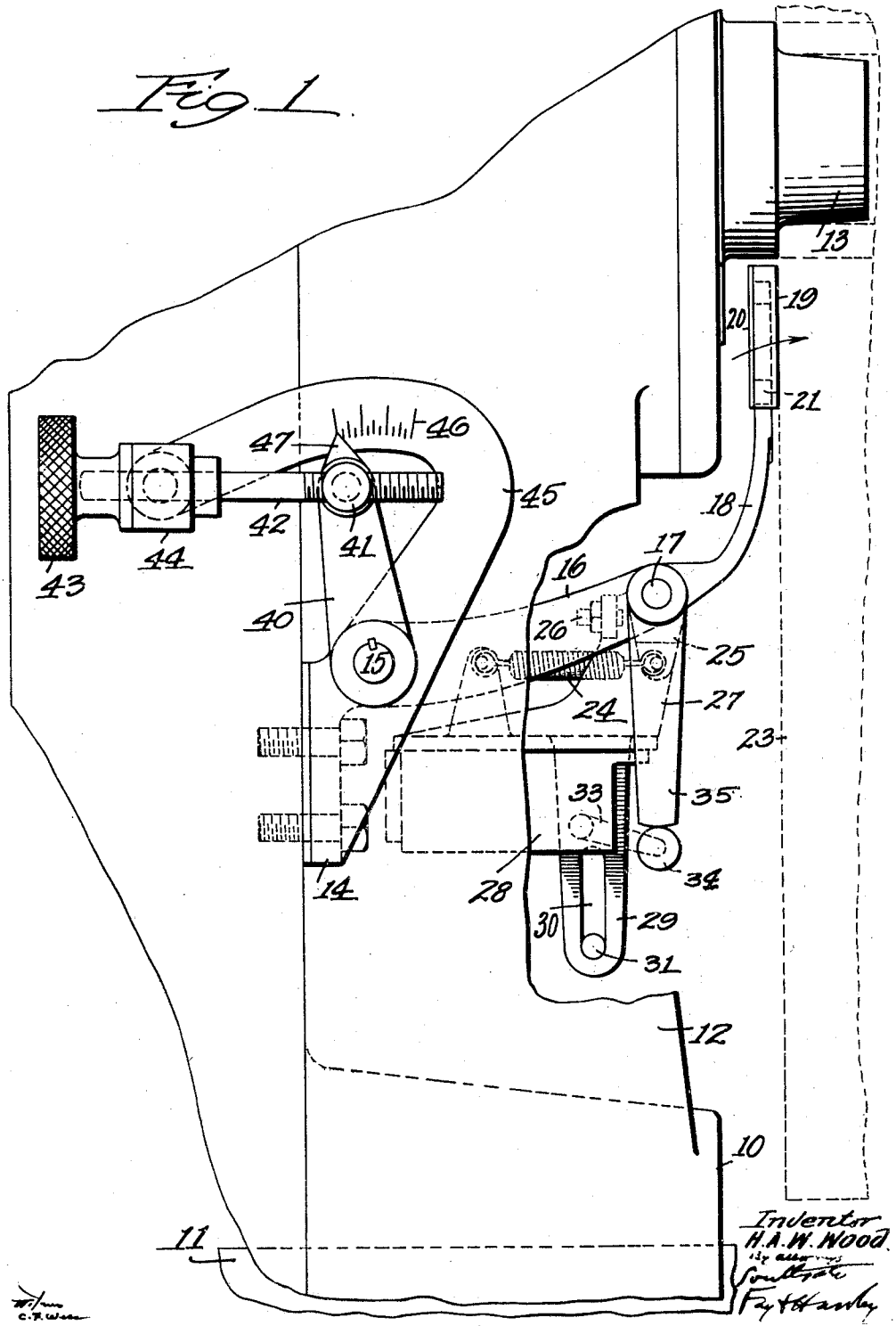
July 28, 1936. H. A. W. WOOD 2,048,766

ADJUSTABLE BUTT SWITCH FOR WEB PASTING DEVICES

Original Filed June 16, 1931 2 Sheets-Sheet 1

Fig. 1.

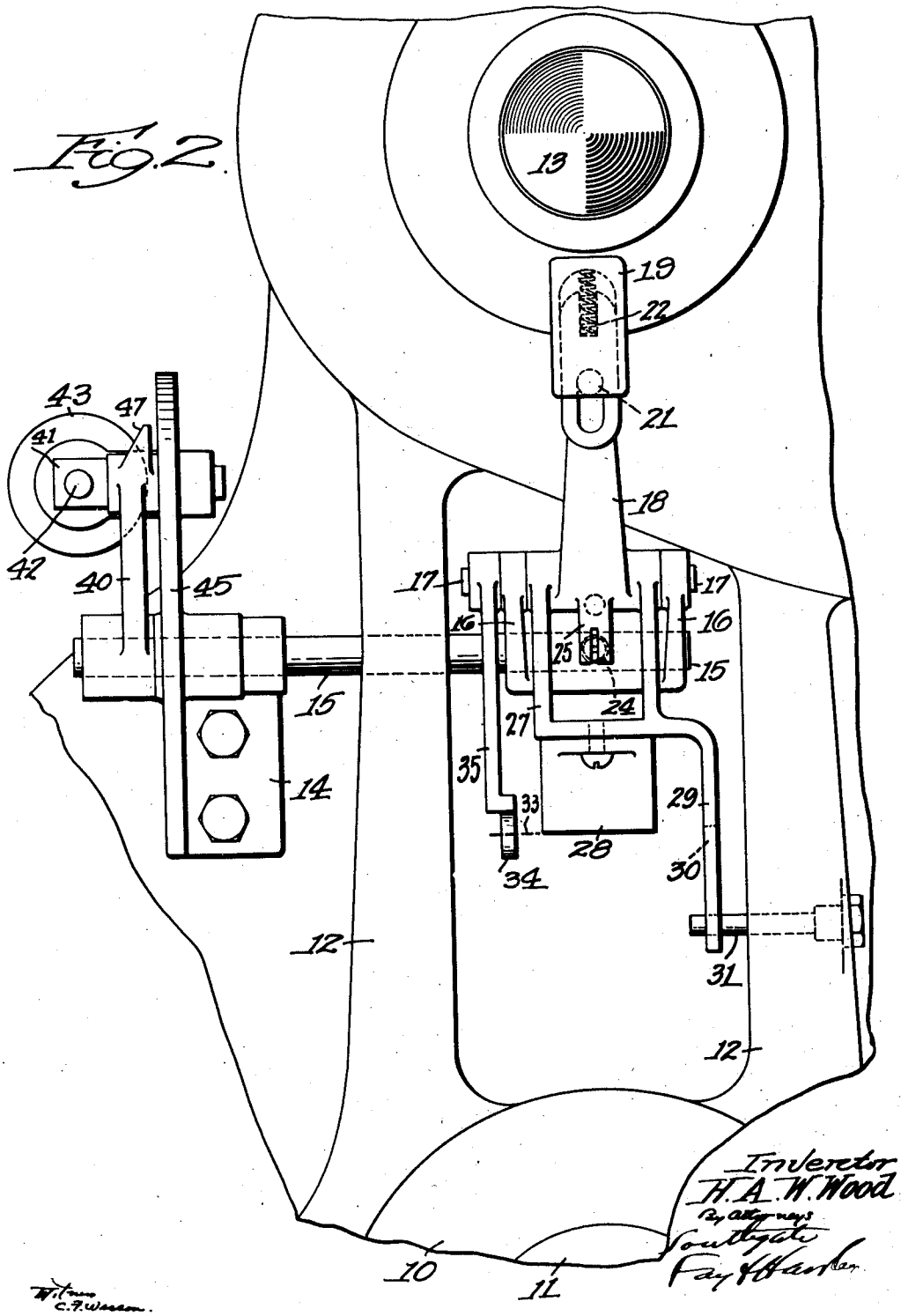


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Fig. 2.



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ADJUSTABLE BUTT SWITCH FOR WEB PASTING DEVICES

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10 Claims. (Cl. 200—52)

This invention relates to the splicing of paper rolls on high speed printing presses particularly, but is capable of analagous uses.

The principal object of this invention is to provide a butt switch and means for operating it against the end of the web roll with means for adjusting it to operate it when any desired diameter of the butt has been reached. It will be understood that this is only one feature of the mechanism used in splicing and controls the time of the splicing by the running roll reaching its minimum diameter, and that other means is provided, not constituting a part of this invention, for timing the splicing in accordance with the rotation of the new roll.

Further objects and advantages of the invention will be described hereinafter.

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

Fig. 1 is an elevation of a part of a web roll reel for changing the web on a printing press, and showing a preferred embodiment of this invention, and

Fig. 2 is an end view of a portion of the same.

The invention is employed in connection with a reel 10 mounted to rotate with a shaft 11 which drives it. The reel has a plurality of spiders 12 projecting therefrom radially, each one supporting a spindle 13 for a web roll. Of course, the reel is double for supporting the opposite ends of the spindle, but only one end is shown herein.

Mounted on a bracket 14 on the spider is a shaft 15. This shaft extends outwardly from its bearing and has a bifurcated arm 16 provided with two bearings. In these bearings is mounted a second shaft 17 parallel with the shaft 15 and movable out and in as that shaft swings on its own axis.

On this shaft 17 is pivotally mounted, a frame to which is fixed a butt switch lever 18, the end of which carries a slidable shoe 19 which is assembled with a backing strip 20 and a roller 21 for operation on the end of the butt switch lever 18. A small spring 22 tends to hold this shoe in its outermost position. The shoe itself bears against the end of the paper roll 23 and is kept in the position shown in Fig. 1 until the paper has been used off so that the shoe passes over the edge of the roll, moved thereby by a spring 24 and another arm 25 on the pivoted frame, against a stop 26. The other end of the spring is connected with a switch box 28.

This slidable shoe is provided so that when operation takes place on a butt that is slightly eccentric, the low portion of the butt allows the lever to move forward and the shoe permits some flexibility at a time when the high portion of the butt comes around. This eliminates the danger of injuring the edge of the paper roll.

Hung on the shaft 17 by said pivoted frame is a bifurcated arm 27 which supports the switch box 28 so that the switch box moves out and in with the shaft 17. On the bifurcated arm 27 is a projecting arm 29 extending directly inward and having a long slot 30 at its inner end. Into this slot projects a stud 31 mounted on the reel spider 12. This arrangement is provided so that, as the shaft 17 swings out and in, the switch-box and accompanying parts will move in a substantially radial direction guided by this stud.

The switch-box 28 is of an ordinary kind having an arm 33 projecting therefrom and adapted, when moved outwardly about its pivot, to close the contacts in the switch and having a spring inside, not shown, for moving the arm outwardly. On this arm is a switch roller 34.

On the shaft 17 is fixed a switch arm 35 projecting inwardly and engaging the roller 34 to prevent the spring inside from swinging this roller out. It will be obvious that when the paper roll 23 is reduced to such size that the shoe 19 passes to the right, or in a clockwise direction, as shown in Fig. 1, the shaft 17 will be turned and the arm 35 with it by the action of the spring 24. This swings the arm 35 away from the roller 34 and allows that to move upwardly. Thus the switch is operated and the circuit completed. This circuit is not shown and can be used for an alarm or signal device or for any desired purpose, or to start any part of the machinery into operation automatically.

For the purpose of adjusting the butt switch so that the diameter of the roll at which the switch operates may be changed, the shaft 15 is provided with a lever 40 fixed to it and adapted, of course, to turn the shaft. This lever is provided with a poppet 41 through which a screw 42 is threaded. This screw has a knurled wheel 43 on the end by which it can be turned and it is mounted in a bearing 44. A bracket 45 is fixed on the reel spider and has a scale 46. On the arm 41 is a pointer 47 cooperating with the scale.

Now it will be obvious that by turning the wheel 43 the pointer 47 can be turned to any desired point on the scale 46 and the bifurcated arms 16 turned therewith. This, of course, moves the shaft 17 out or in through an arc. This motion, as it affects the switch box, is made as nearly radial as possible by the stud 31. With the shaft 17 moves the shoe 19 and the switch box 28. In

this way the diameter to which the roll 23 has to come before the switch will be operated is adjusted. The switch may be set, therefore, to set it to the condition demanded, before splicing is started and this mechanism can be adjusted to trip at the desired size of butt as registered on the scale 46. This adjustment may be needed for different purposes, as for example, different qualities and strengths of paper and of course, it is desired to get the device to act at the lowest possible diameter for the running roll that is practical in order to avoid waste of paper.

Although I have illustrated and described only one form of the invention, I am aware of the fact that modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore, I do not wish to be limited to the exact form shown, but what I do claim is:—

1. In a device of the character described, the combination of a reel having a spider for supporting a web roll, a shaft adapted to swing, a lever fixed to the shaft and having a shoe for engaging the web roll, yielding means for turning the lever toward the web roll, a switch box, and a switch arm fixed to said lever and turning with it and arranged to control the operation of said switch.

2. In a device of the character described, the combination of a reel having a spider for supporting a web roll, a shaft pivoted on said spider, a second shaft parallel therewith carried by the first shaft and adapted to swing about it, a lever fixed to the second shaft and having a shoe for engaging the end of the web roll, yielding means for turning the lever toward the web roll, a switch box carried by the second shaft, and a switch arm fixed to said lever and turning with it and arranged to control the operation of said switch.

3. The combination with a switch adapted to close an electric circuit for any desired purpose, of a bodily movable oscillatable shaft, an arm fixed to said shaft, means supported by said arm and carrying the switch, means connected with said switch for constituting a guide to cause the switch to move in a straight line as the shaft moves, a shoe carried by the arm for engaging the end of a web roll and means connected with the shoe for allowing the switch to close when the web roll is reduced in diameter to a point beyond the end of the shoe.

4. In a butt switch for a web supplying roll, the combination of a shoe adapted to bear on the end of the roll, yielding means for forcing the shoe inwardly when the roll is reduced to a diameter to allow it to move in, means whereby the shoe can be moved to adjust its position with respect to the spindle of the roll and a switch movable with the shoe and comprising a switch roller and a switch arm, the arm being fixed to move with said shoe and adapted normally to engage the roller and hold the switch open.

5. The combination with a switch adapted to close an electric circuit for any desired purpose, of a shaft, an arm fixed to said shaft and movable as the shaft turns, a second shaft supported by said arm and carrying the switch, a shoe supported by, and movable with, the second shaft for engaging the end of a web roll, means connected with the shoe for causing the switch to close when the web roll is reduced to a predetermined diameter, a lever on the first named shaft, and operating means for turning said lever and adjusting the relation of the shoe to the spindle of the roll.

6. In a device of the character described, the combination with a reel for supporting a web roll, of a shaft mounted on the reel, an arm on the shaft having a pointer thereon, a bracket fixed on the spider having a scale over which said pointer is adapted to be adjusted, a screw journalled on the bracket and connected with the pointer to swing it and the shaft as the screw is turned, a roll engaging shoe carried by the shaft and adapted to be moved by the turning of the shaft, yielding means for moving the shoe toward the roll, and a switch movable with the shoe and adapted to be operated by the action thereof to connect up an electric circuit.

7. The combination with a switch adapted to control a circuit for any desired purpose, of a shoe held against a web roll, means connected with the shoe for controlling the switch, and means for adjusting the shoe to different distances from the axis of the roll.

8. The combination with a switch adapted to control a circuit for any desired purpose, of a shoe held against a web roll, means connected with the shoe for controlling the switch, means for automatically operating the switch when the web roll reaches its predetermined minimum diameter, and yielding means for mounting the shoe movable, so that, when the nearly exhausted roll is eccentric, the shoe will afford flexibility to avoid injury to the roll when the high point comes around into position to engage the shoe.

9. In a device of the character described, the combination of a roll having means for supporting the web roll, a shoe, means for movably supporting the shoe in position to engage the web roll, yielding means for moving the shoe toward the web roll, a switch box, and a switch arm connected with the shoe to be turned with it for controlling the operation of said switch.

10. In a device of the character described, the combination of a web roll, means engaging the end of the web roll and adapted to operate in response to a decrease in diameter of the web roll, and means for spring-pressing the first named means in a direction substantially radial to the center of the web roll.

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