April 19, 1949. F. SPILLMAN 2,467,869

WIRE REELING MACHINE

Filed March 21, 1945 3 Sheets-Sheet 1

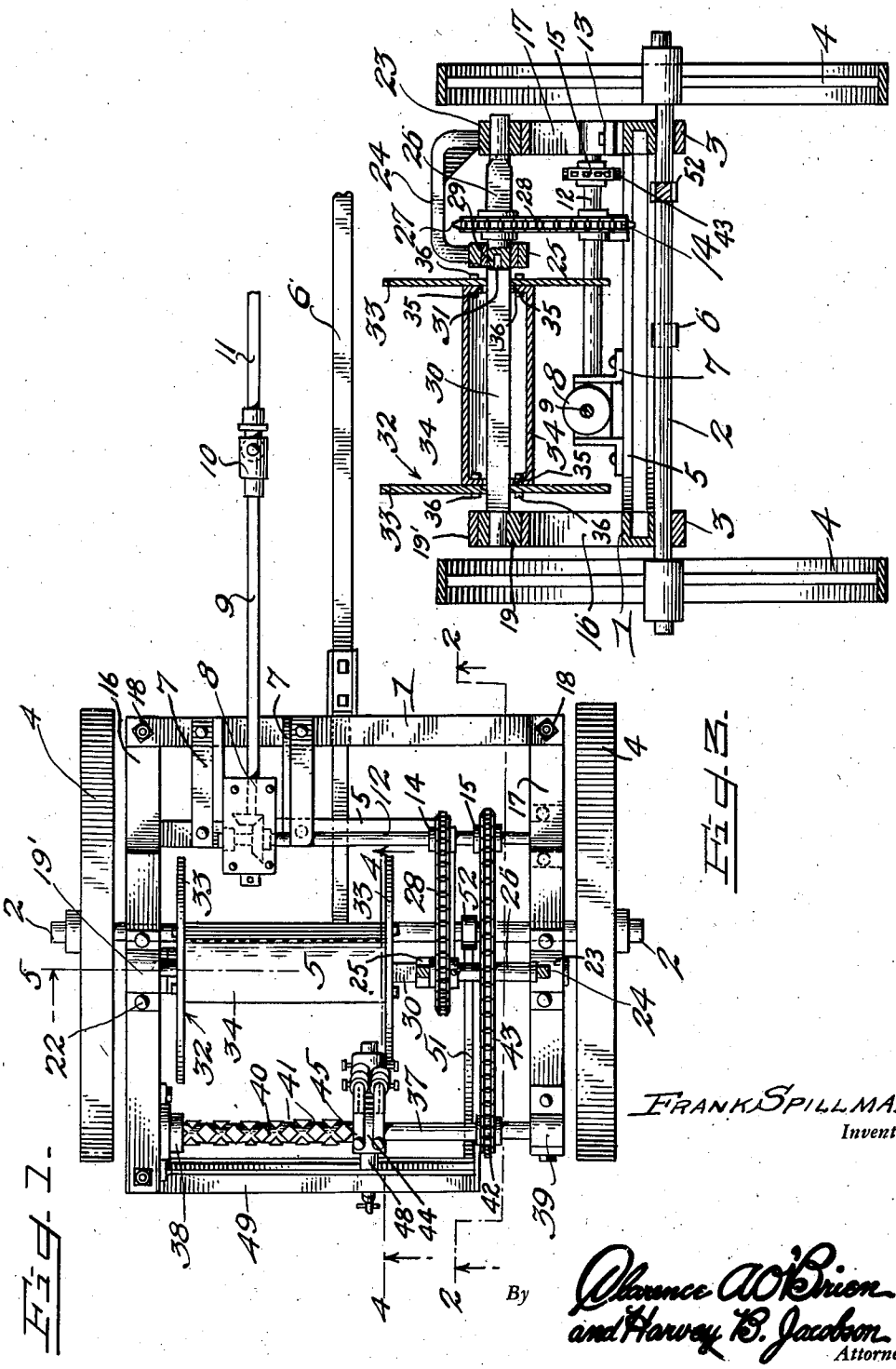


Fig. 2.

Fig. 1.

FRANK SPILLMAN
Inventor

By Clarence A. O'Brien and Harvey B. Jacobson
Attorneys

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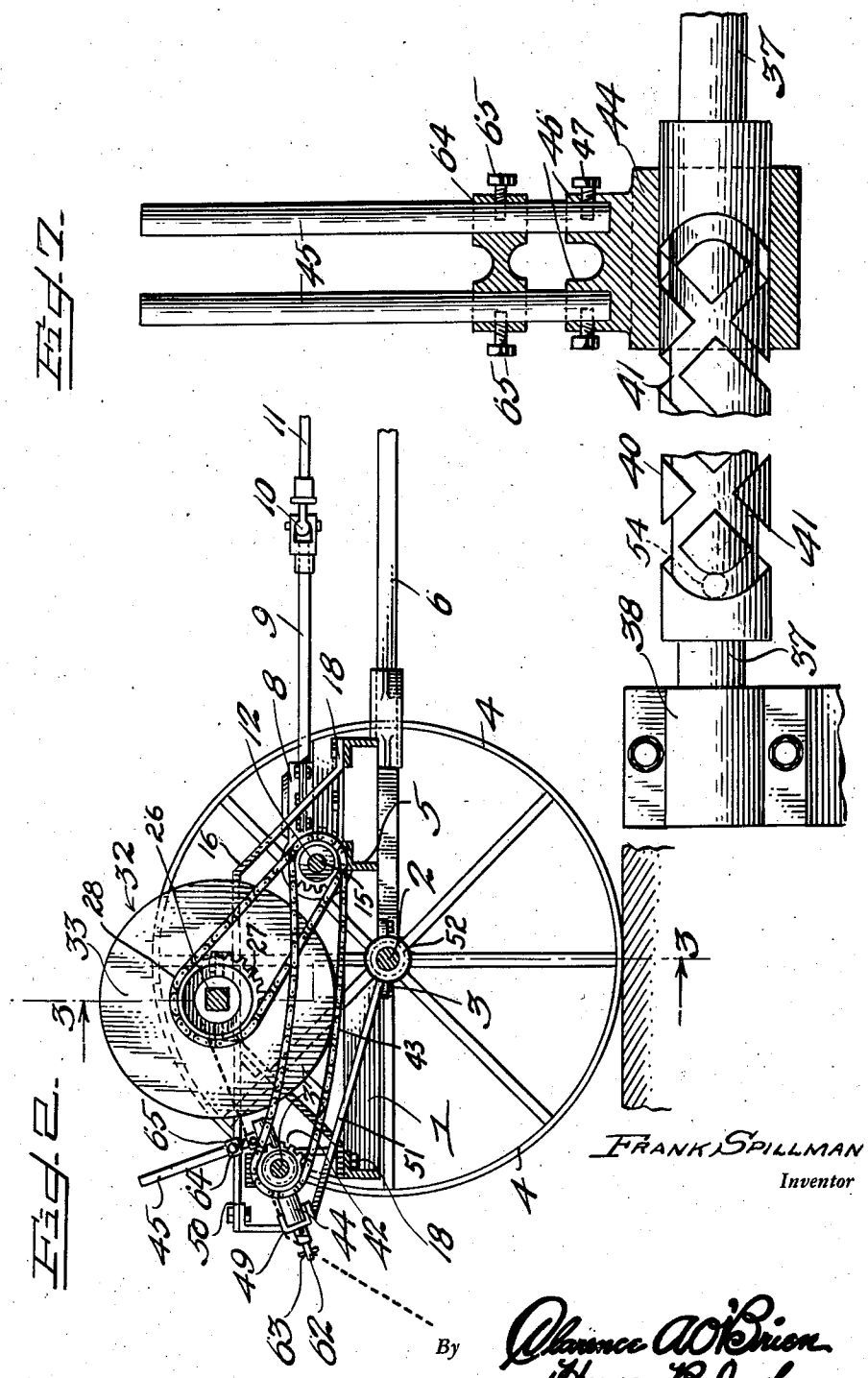


Fig. 2.

Fig. 1.

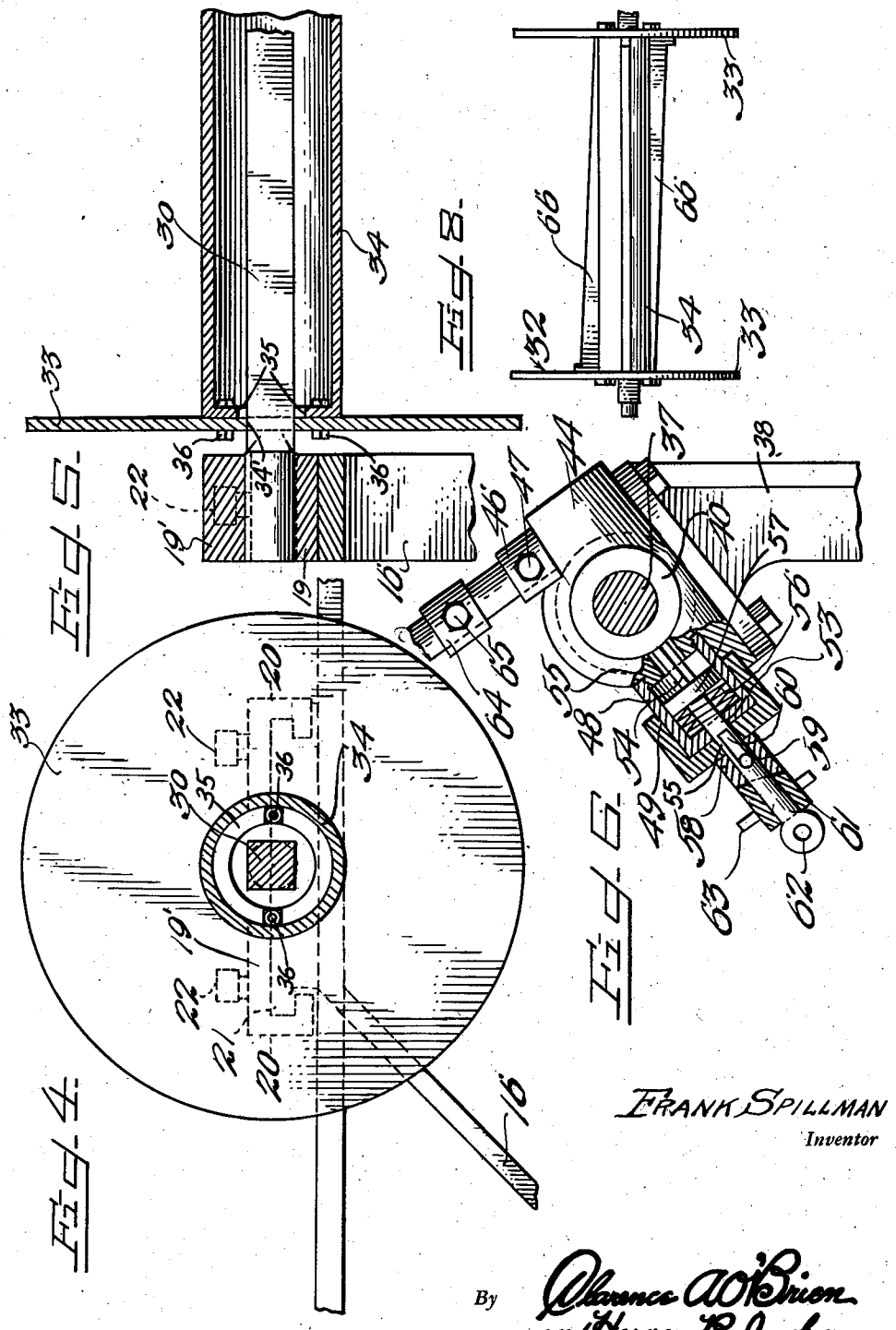
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Inventor

By Clarence A. O'Brien and Harvey B. Jacobson
Attorneys

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FRANK SPILLMAN
Inventor

By Clarence A. O'Brien and Harvey B. Jacobson
Attorneys

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WIRE REELING MACHINE

Frank Spillman, Chillicothe, Ill.

Application March 21, 1945, Serial No. 583,898

2 Claims. (Cl. 242—90)

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My invention relates to improvements in wire reeling machines for reeling up telephone, barbed and other fence wire into roll form.

The invention is designed with the primary object in view of providing a simply constructed, efficient machine for use as a trailer on a tractor, or motor truck, and adapted for power drive from the power take-off of a tractor, or motor truck, to reel up wire on the road, in a field, or in any other location.

Another object is to provide in such a machine level winding mechanism especially adapted for leveling off all kinds of wire into roll form, as the same is being wound, and equipped with means for disabing the same at will.

Still another object is to provide in such a machine for quickly and easily removing a wound roll of wire from the machine.

Other and subordinate objects are also comprehended by my invention, all of which, together with the precise nature of my improvements, will be readily understood when the succeeding description and claims are read with reference to the drawings accompanying and forming part of this specification.

In said drawings:

Figure 1 is a view in top plan of my improved wire-reeling machine in a preferred embodiment thereof,

Figure 2 is a view in longitudinal vertical section taken on the line 2—2 of Figure 1,

Figure 3 is a view in transverse section taken on the line 3—3 of Figure 2,

Figure 4 is a fragmentary view in longitudinal section taken on the line 4—4 of Figure 1, and drawn to an enlarged scale,

Figure 5 is a fragmentary view in transverse section taken on the line 5—5 of Figure 1, and drawn to an enlarged scale,

Figure 6, is a fragmentary detail view in longitudinal section taken as viewed from line 4—4 of Figure 1, and drawn to an enlarged scale,

Figure 7 is a fragmentary view in rear elevation, with parts in section, of the duplex screw shaft and the wire-leveling guide, and

Figure 8 is a view in side elevation of a modification of the invention.

Referring to the drawings by numerals, my improved wire-reeling machine, as shown, comprises, as its basic elements, a rectangular main frame 1, preferably of channel iron, supported in the transverse center thereof, approximately, by an axle 2 extending through bearings 3 depending from the sides of the frame 1, the axle 2 being equipped with suitable ground wheels 4.

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A cross bar 5 extends between the sides of the frame 1 intermediate the axle 2 and the front of said frame. A draft tongue 6 is suitably attached to the frame 1 to extend forwardly therefrom for coupling to a tractor, or motor truck, not shown.

Adjacent one side of the frame 1, and supported by angle bars 7 extending across the cross bar 5 and the front of the frame 1 is a bevel gear drive 8, conventionally illustrated as sufficient for the present purposes, and from which a drive shaft section 9 extends forwardly with its front end connected by a universal joint 10 to a second drive shaft section 11. The shaft section 11 may be adapted, in any suitable manner, for connection to the power take-off of a tractor, or motor truck, not shown, or to any other source of power desired. A jack shaft 12 extends from one side of the beveled gear drive 8 part way across the frame 1 and over the cross bar 5 with one end connected in driven relation to the gear drive 8, in any suitable manner, and its other end journaled in a suitable bearing 13 on the side of the frame 1 opposite that to which the gear drive 8 is adjacent. A pair of sprocket wheels 14, 15 are fixed on the jack shaft 12 adjacent said opposite side of the frame 1.

A pair of upwardly bowed bar-like brackets 16, 17 rise from opposite sides of the frame 1 and are bolted thereto, as at 18. The bracket 16 on the same side of the frame 1 as the gear drive 8 is surmounted by a bearing including a lower block 19 secured in any suitable manner on said bracket and a detachable cap section 19' having hooked ends 20 straddling end lugs 21 on the bracket 16. Bolts 22 in the cap section 19' provide for clamping the same to the block 19. The bracket 17 on the same side of the frame as the sprocket wheels 14, 15 is surmounted by a bearing 23 suitably fixed thereon and having an upwardly arched arm 24 extending therefrom and terminating in a bearing 25 disposed intermediate the bearing formed by the block 19 and cap section 19' and the bearing 23, and adjacent to the latter, in horizontal alignment therewith.

A short reel-driving shaft section 26 is journaled at its ends in the bearings 23, 25 with a sprocket wheel 27 suitably fixed thereon intermediate said bearings 23, 25 and to which the sprocket wheel 14 is operatively connected by means of a sprocket chain 28. The end of the shaft section 26 that is journaled in the bearing 25 is provided with a square socket 29 therein. A second, relatively longer, reel-driving shaft section 30 is journaled at one end in the bearing

formed by the block 19 and cap section 19' and provided at its other end with a square axial key 31 fitting in the socket 29, whereby said section 26 is adapted to drive said section 30. A reel 32 is mounted, as presently described, on the reel-driving shaft section 30, and to which said shaft section 30 is operatively connected as follows: The reel-driving shaft section 30 is square intermediate its ends. The reel 32 comprises a pair of disc-like end members 33 having axial square apertures, as at 34', therein, whereby said members may be slid onto and off said shaft section 30. A hollow cylindrical core 34 extends between the members 33 in surrounding relation to said shaft section 30 and is provided with end flanges 35 to which said members 33 are detachably attached, as by bolts 36.

In the rear of the described reel 32 is level winding mechanism, the basic element of which is a cross shaft 37 having its ends suitably journaled in bearings 38, 39 suitably mounted on the bearing brackets 16, 17 so as to dispose said shaft 37 below the level of the core 34 of said reel 32. The cross shaft 37 is provided opposite the reel 32 with a duplex screw section 40 comprising the usual relatively reverse spiraled grooves 41. A sprocket wheel 42 is suitably fixed on said shaft 37 in the plane of the sprocket wheel 15 and to which said wheel 15 is operatively connected by means of a sprocket chain 43.

A wire-guiding carriage block 44 is suitably mounted on the shaft section 40 to travel along the same, said block inclining downwardly and rearwardly and carrying a pair of laterally spaced upwardly and rearwardly inclined wire-guiding rods 45 secured in bosses 46 on the front end of said block 44 by set screws 47. A housing cylinder 48 is threaded onto the rear end of said carriage block 44 and is slidably fitted in a channel guide bar 49 disposed in the rear of the shaft 37 parallel with and below the same. The guide bar 49 is mounted at one end in a supporting frame 50 extending rearwardly from the bracket 16 and to which said ends of said bar 49 may be fixed in any suitable manner. The other end of said bar 49 is suitably supported by a bar 51 having an end collar 52 suitably fixed on the axle 2. A pin 53 is slidably mounted in the rear end of the carriage block 44 for endwise movement into and out of the grooves 41 and with a square front end section 54 for preventing said pin from turning. The pin 53 extends out of the rear end of the housing cylinder 48 and out of the guide bar 49 through a longitudinal slot 55 in the latter. A spring 56 in said cylinder 48 interposed between the bottom of the cylinder and a collar 57 on said pin urges the latter forwardly to enter and follow the grooves 41. A cam collar 58 is slidably fitted on said pin 53 by means of a pin and slot connection 59, 60 and to bear against the rear side of the guide bar 49. A second cam collar 61 is rotatably mounted on said pin 53 between the cam collar 58 and an enlarged hand grip eye 62 on the rear end of said pin. The cam collar 61 is provided with radial hand grip studs 63.

A yoke bar 64 is slidably mounted on the guide rods 45 and provided with set screws 65, whereby said yoke bar is adjustable vertically on said guide rods to lift or lower wire being fed to the reel 32, as occasion may require.

Referring to the operation of the described invention. The drive shaft sections 9, 11 operate the gear drive 8 to impart motion to the jack shaft 12, whereby the reel-driving shaft section 26 is rotated to similarly rotate the reel-driving shaft section 30 and the reel 32 in a direction to wind up wire fed to said reel, the said shaft section 26 being rotated through the sprocket wheel and chain connections already described. The shaft 37 is rotated simultaneously with such rotation of the reel 32, by means of the sprocket and chain connections already described, such rotation of said shaft 37 feeding the carriage block 44 back and forth along the duplex screw shaft section 40, in a manner which will be understood. Obviously, wire extended between the guide rods 45 over the yoke 64 and suitably attached to the reel 32 will be wound upon the same evenly and in roll form, since such wire will be guided by the guide rods 45 back and forth along the core 34 of the reel 32. When a roll of wire is completely wound on the reel 32, the roll may be removed from said reel as follows: The cap section 19' may be detached from the bearing block 19, the reel-driving shaft section 30 pulled out of the socket 29 in the reel-driving shaft section 26 and the reel 32 together with said section 30 removed from the machine by lifting the same out from between the bracket 16 and the bearing 25. The driving shaft section 30 may then be slid out of the end members 33 of the reel 32, said members, or one, if desired, detached from the core 34 so that the roll of wire may be slid off of said core. By rotating the cam collar 61, said collar may be caused to coact with the cam collar 58 to cam the pin 53 out of the grooves 41 in the duplex screw section 40 of the shaft 37 and thereby disable the level winding mechanism when it is not desired to use the same. Stock reels smilar to reel 32 loaded with new wire may be mounted on the reel-driving shaft section 30 for unwinding, as will be manifest, for instance by forward travel of the machine. As will be understood, initial starting and also stopping of the machine, as regards driving of the reel 32 may be controlled from the tractor or other tow vehicle to the power take-off of which the driving shaft 11 is connected.

As shown in Figure 8, wedges 66 may be provided for fitting in between the end members 33 of the reel 32 and winding of barbed wire particularly, or wire to be salvaged, thereon, such wedges facilitating after the same have been withdrawn, removal of such wire from the core 34.

The foregoing will, it is believed, suffice to impart a clear understanding of my invention without further explanation.

Manifestly, the invention, as described, is susceptible of modification as regards structure and combination of parts, without departing from the inventive concept, and right is herein reserved to such modification as fall with the scope of the appended claims.

What I claim is:

1. A wire-reeling machine for attachment to a tow vehicle having a power take-off comprising a wheel-supported frame, a reel, means to rotatably mount the reel on said frame, level winding mechanism on said frame for feeding wire to the reel and including an operating shaft, and means to simultaneously rotate said reel and shaft including a drive shaft extending forwardly of said frame and adapted for attachment to said power take-off, the first-mentioned means comprising a pair of reel-driving shaft sections keyed together end to end, one of said sections being driven and driving the other, the other section having said reel slidably mounted thereon for removal therefrom and being detachable from the driven section, and a bearing for one end of said other shaft section having a cap section removable to provide

for removal of said end of the shaft section from the bearing.

2. A wire-reeling machine for attachment to a tow vehicle having a power take-off comprising a wheel-supported frame, a reel, means to rotatably mount the reel on said frame, level winding mechanism on said frame for feeding wire to the reel and including an operating shaft, and means to simultaneously rotate said reel and shaft including a drive shaft extending forwardly of said frame and adapted for attachment to said power take-off, said operating shaft including a duplex screw section of relatively reverse spiral grooves, a wire-guiding carriage on said section movable along the same, a spring-pressed pin in said carriage for engagement with said grooves and adapted to be retracted out of the grooves to disable the carriage, and coacting camming devices on said pin for retracting the same.

FRANK SPILLMAN.

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