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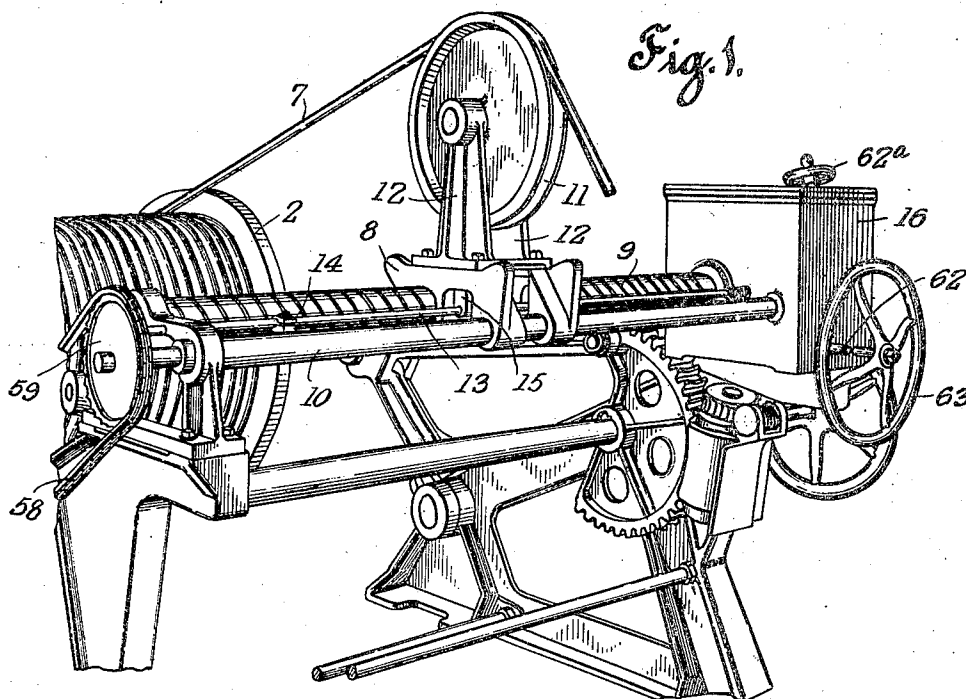
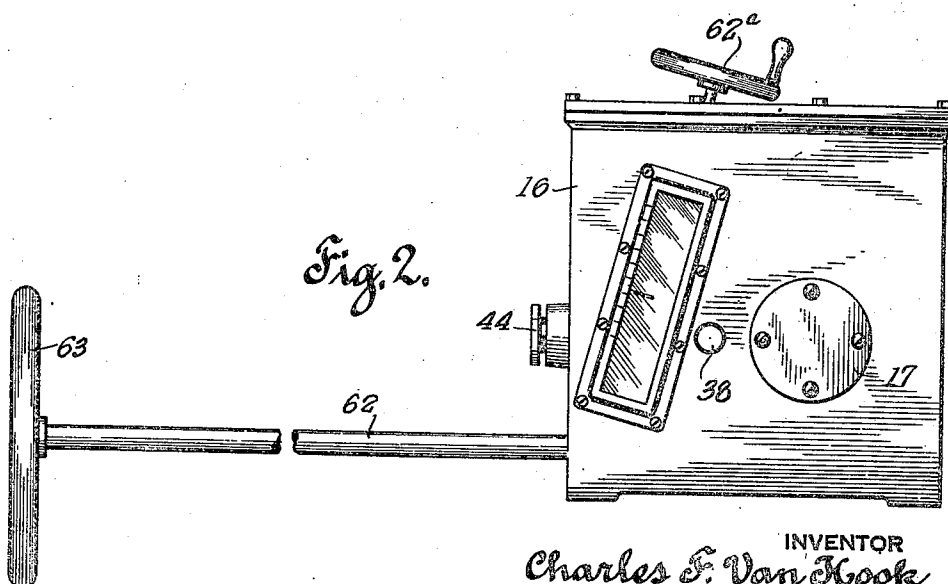
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TRAVERSE MECHANISM FOR REELING MACHINES

Filed Sept. 25, 1928

4 Sheets-Sheet 1



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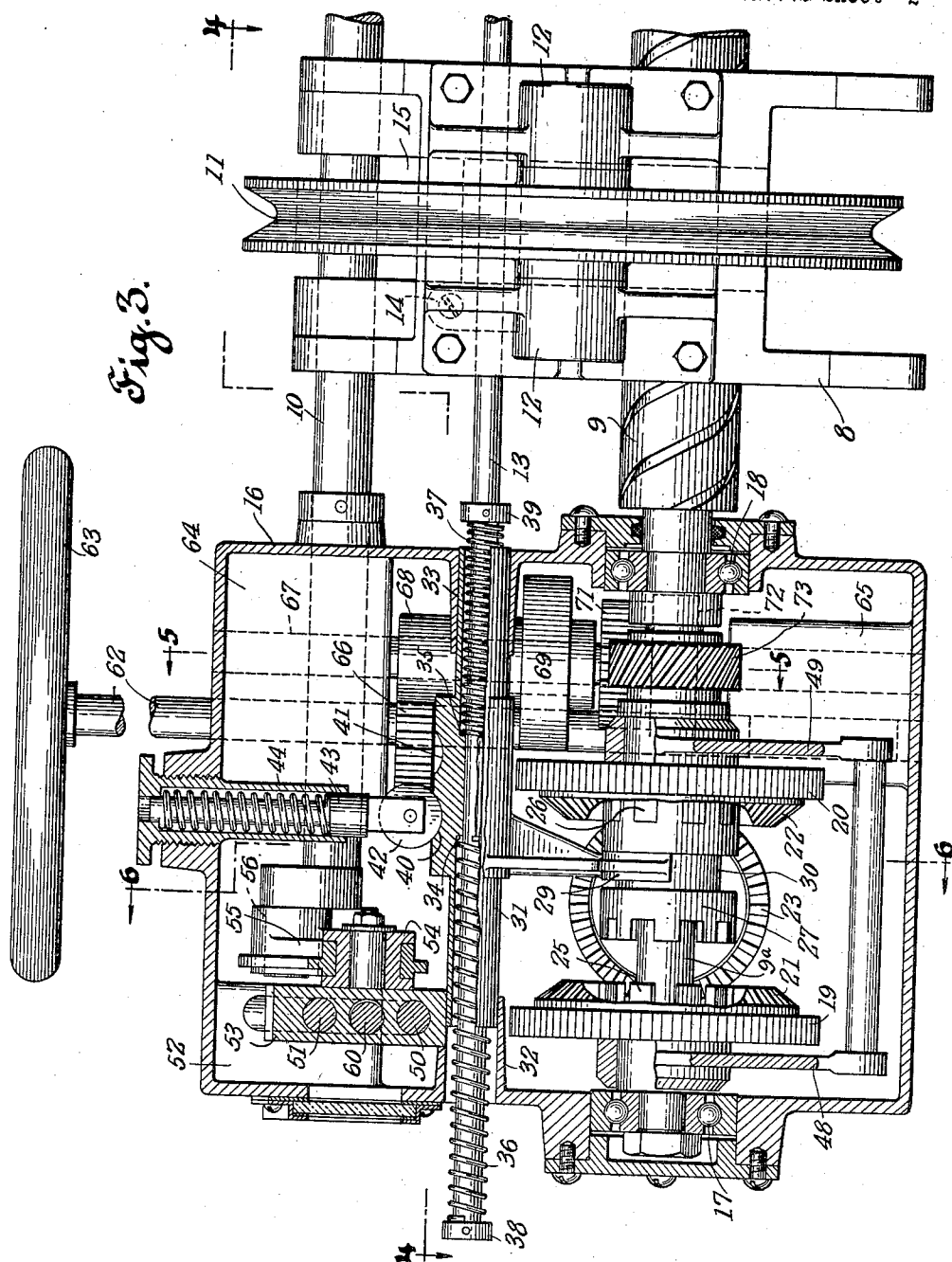
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TRAVERSE MECHANISM FOR REELING MACHINES.

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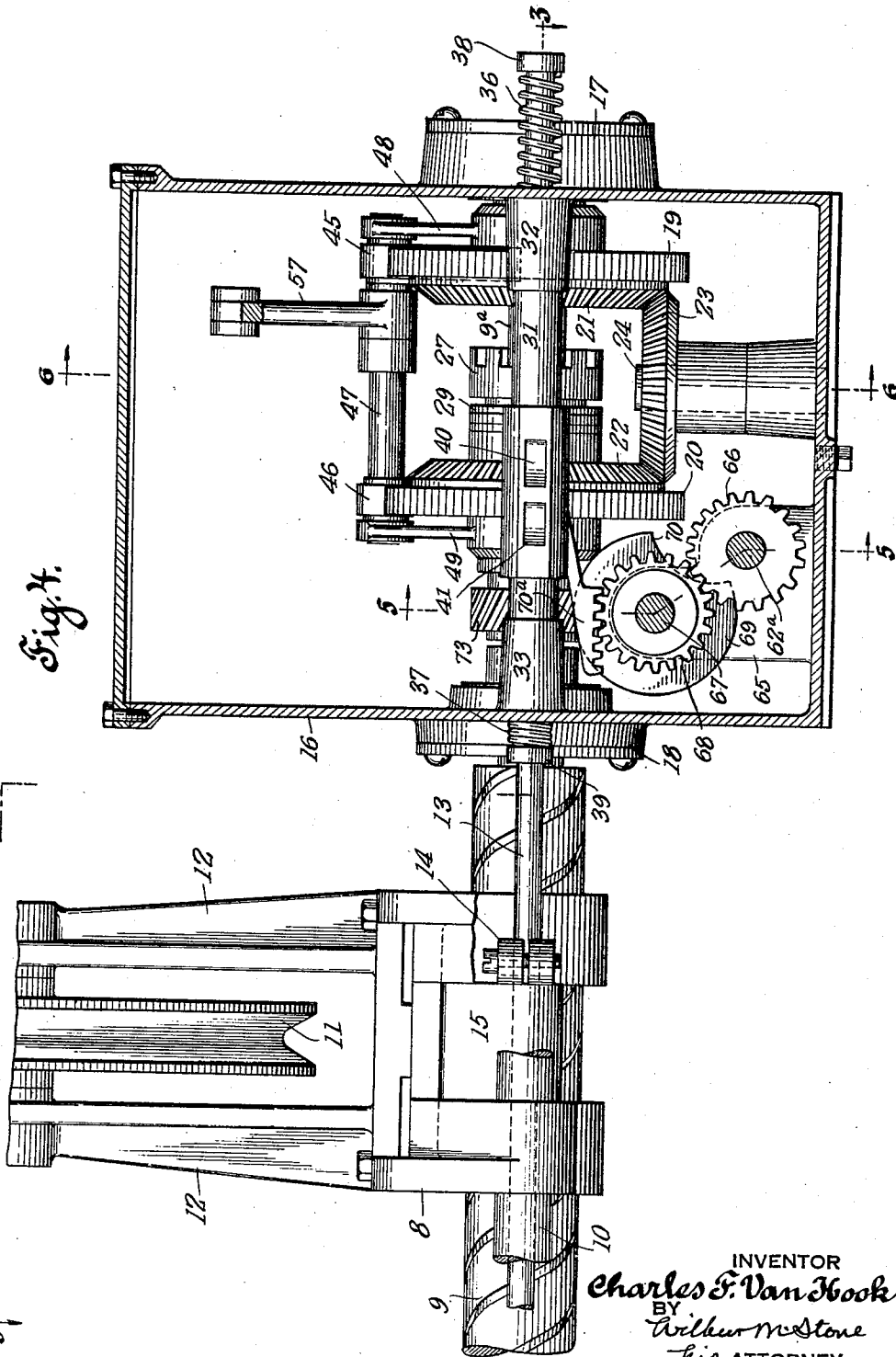
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Fig. 4.



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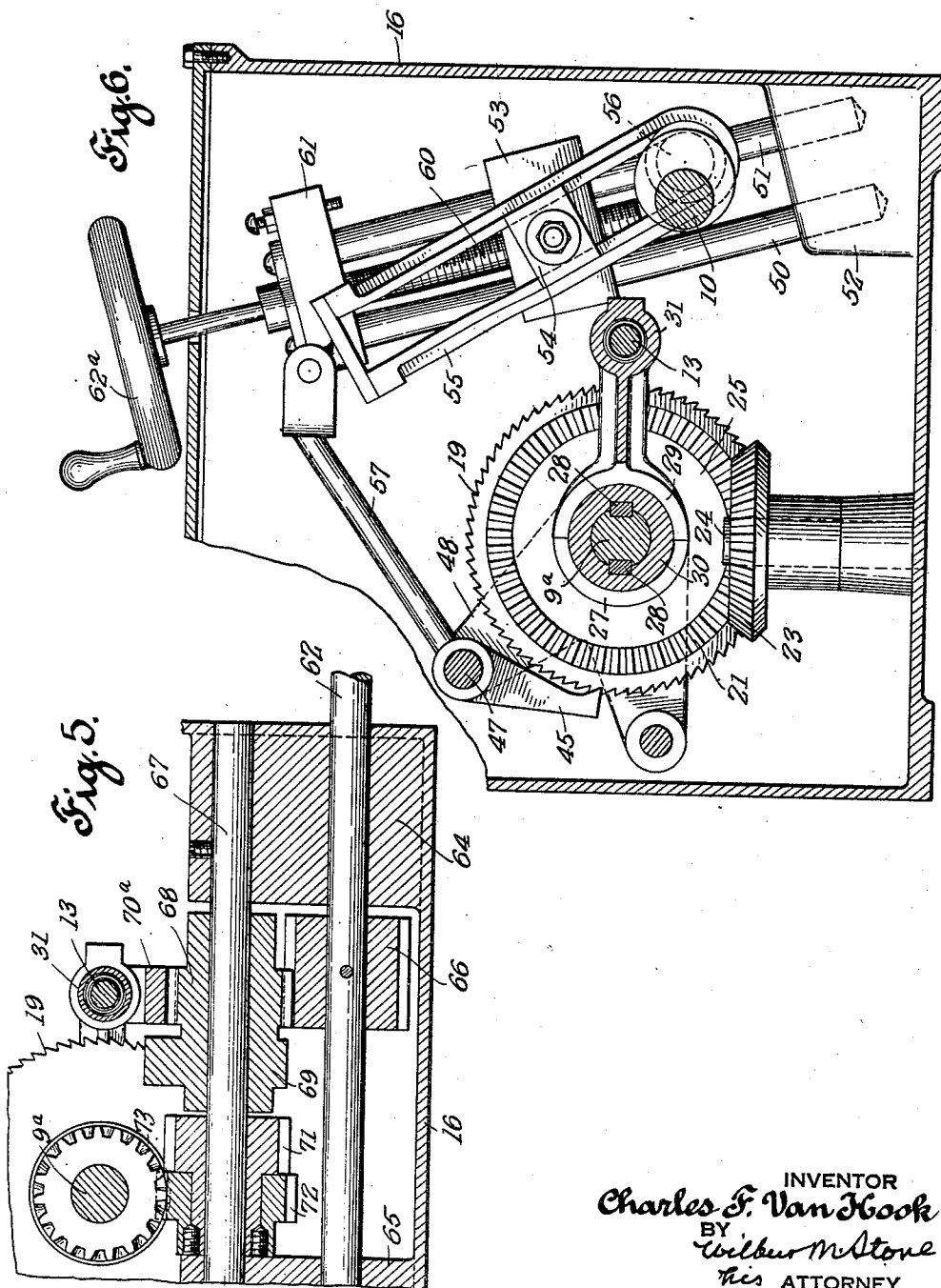
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UNITED STATES PATENT OFFICE

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TRAVERSE MECHANISM FOR REELING MACHINES

Application filed September 25, 1928. Serial No. 308,211.

This invention relates to traverse mechanisms for reeling machines and has for its object to provide a mechanism of the character described which, while normally operable automatically, is provided with hand control means operable by a machine tender who is stationed remote from the reeling machine.

With this end in view and others which will appear later herein, my improved mechanism comprises features illustrated in their preferred embodiment in the drawings accompanying this specification, wherein Figure 1 is a perspective view of a reeling machine to which my improvements are applied. Fig. 2 is a side elevation of the box in which the control mechanism is housed. Fig. 3 is a plan view, partly in section on line 3—3 of Fig. 4, of the mechanism within the box and the traverse guide controlled thereby. Fig. 4 is an elevation partly in section on line 4—4 in Fig. 3. Fig. 5 is a fragmentary sectional elevation on line 5—5 of Figs. 3 and 4. Fig. 6 is a sectional elevation on line 6—6 of Figs. 3 and 4. The scale of Fig. 2 is about twice that of Fig. 1. The scale of Figs. 3, 4, 5 and 6 is the same and about twice that of Fig. 2.

The reeling machine to which my improvements are applied may be of known character, comprising means, not shown, for supporting and rotating a reel 2. For guiding the cable or rope 7 from the cable laying machine, not shown, traverse carriage 8 is mounted in engaging relation with traverse screw 9 and with supporting shaft 10 on which said carriage slides. Cable guide sheave 11 is mounted for free rotation between uprights 12, 12 of carriage 8, and over said sheave cable 7 is led to reel 2. For reversing the direction of rotation of traverse screw 9, shift rod 13 is provided with two dogs 14, 14, adjustably clamped thereto and engageable with depending ear 15 of carriage 8 as that carriage moves in one direction or the other.

The endwise shifting of rod 13 operates traverse screw reversing means within box 16, which will presently be described.

Traverse screw 9 is shouldered down before it enters box 16 and within said box its shaft portion 9a is provided with opposing bear-

ings, preferably ball-bearings, 17, 18 located in opposite end walls of said box. Spaced apart and fixed on shaft portion 9a within box 16, are ratchets 19, 20, having oppositely directed teeth. To each of said ratchets is fixed a bevel gear, gear 21 to ratchet 19 and gear 22 to ratchet 20 and these gears mesh with bevel gear 23 mounted for free rotation on stud 24 upstanding from the base of box 16.

On the inner faces of gears 21, 22 are clutch teeth, 25, 26 respectively, for alternate engagement with the oppositely disposed teeth of clutch member 27, slidably keyed to shaft portion 9a by keys 28, 28, Figs. 3 and 6. Clutch member 27 may be moved in either direction on shaft 9a to engage at one time clutch teeth 25 and at another time clutch teeth 26 of opposite gears 21 and 22 by the following means. Yoke 29 engages necked-down center portion 30 of clutch member 27 and is attached to sleeve 31 slidably supported in bearings 32, 33 in reaching from the opposite walls of box 16. Rod 13 passes through sleeve 31 and said sleeve has opposite interior abutments 34, 35 against which opposite springs 36, 37 engage. Said springs at those ends thereof opposite said abutments engage collars 38, 39 fixed to rod 13. The rear enlarged portion of sleeve 31 is provided with two notches 40, 41 for alternate engagement with roll 42 rotatably mounted in the end of spring urged plunger 43 slidably mounted in sleeve 44 in reaching from a wall of box 16.

It will be observed that the width of yoke 29 where it engages the necked-down portion 30 of clutch member 27 is less than the distance between the shoulders of said necked-down portion, so as to permit play between said shoulders. This play is provided so that when rod 13 is moved for instance, to the left, Fig. 3, compressing spring 37, and collar 39 engages the right hand end of sleeve 31, roll 42 is forced from seat 40 and spring 37 acts to continue the movement of sleeve 31 to the left. This spring, with its pent-up energy, delivers yoke 29 against the left hand shoulder of the necked-down portion 30 of clutch member 27, with a sharp blow, whereby the

action of releasing clutch member 27 from the clutch teeth of gear 22 is greatly facilitated. If no play was provided between yoke 29 and clutch member 27, a much more powerful spring 37 would be required. The spring which urges roll 42 is of sufficient strength to keep that roll seated in notch 40 against the fully compressed spring 37, and until collar 39 engages the right hand end of sleeve 31 and starts to force roll 42 from its seat 40.

Screw 9 is rotated intermittently, first in one direction and then in the other direction, by means of oscillating pawls 45, 46 in engagement with the teeth of ratchets 19, 20 respectively. Said pawls are pivoted on short shaft 47 fixed in the free ends of arms 48, 49 mounted for free oscillation on the hubs of ratchets 19, 20 respectively.

Adjustably mounted on parallel rods 50, 51, upstanding from foot 52 in box 16, is slide 53 on which is pivoted fulcrum block 54. Oscillating yoke 55 is slidably mounted on said block and at its lower end is pivotally engaged with crank pin 56 on the end of shaft 10. The upper end of yoke 55 is connected by link 57 with short shaft 47. Shaft 10 is rotated from some source of power, not shown, by chain 58 to sprocket 59 thereon, Fig. 1. Slide 53 may be moved up or down on rods 50, 51 to vary the throw of yoke 55 by means of adjusting screw 60 rotatably mounted in head 61 and threaded into slide 53. Said screw 60 extends upwardly through box 16 and terminates in handwheel 62a.

When, in being wound upon reel 2, any one of the layers of cable 7 reaches either head of said reel and its direction of winding is about to be reversed, it is often desirable to have the control of traverse carriage 8 in the hands of the machine operator. Such operator is usually stationed at the cable laying machine, from which cable 7 is led to and over guide sheave 11 and thence onto the reel. The cable laying machine, not shown, is situated some distance from the reeling machine, so that the back and forth movement of the cable on carriage 8 will not objectionably affect the operation of the laying machine. To bring the control of the reeling machine to the remote operator, shaft 62 projects from the front of box 16 at right angles to screw 9 and the axis of reel 2, to any convenient distance and terminates in hand control wheel 63. This shaft 62 connects on the one hand with yoke 29 to move that yoke into neutral position and then connects with shaft 9a of screw 9 to rotate that screw in either direction for moving traverse carriage 8 by hand.

To these ends shaft 62 is mounted both for rotation and endwise movement in bearings 64, 65 in box 16 and has gear 66 fixed thereto, Figs. 4 and 5. Parallel with and above shaft

62 is fixed shaft 67 on which turns gear 68. Fixed to gear 68 is mutilated disc 69, having a portion cut away at 70 for locking engagement with gear 66, when said cut-away portion is brought into register with said gear and said gear is moved to the left, Fig. 5, into engagement therewith. Diametrically opposite gear 66 and in engagement with gear 68 is rack 70a projecting from the enlarged portion of sleeve 31 of yoke 29. By rotating shaft 62 and gear 66 to bring cut-away portion 70 of disc 69 into engageable position relatively to gear 66, sleeve 31 is moved endwise and clutch member 27 is moved to neutral position between the opposite clutch teeth of gears 21, 22 and roll 42 rides on the high spot between notches 40, 41 on sleeve 31. Thereupon, shaft 62 may be moved endwise to the left, Fig. 5, until gear 66 engages gear 71 mounted for rotation on shaft 67. Fixed to gear 71 is spiral gear 72 meshing with similar spiral gear 73 fixed to shaft 9a of screw 9. Then by rotating shaft 62, motion in either direction is transmitted to screw 9, whereby traverse carriage 8 is shifted as desired.

When the hand operation of the traverse is completed, shaft 62 is moved endwise to the right, Fig. 5, and gear 66 is withdrawn from engagement with gear 71 and into engagement with gear 68. Then shaft 62 is rotated to shift clutch member 27 from neutral into engagement with one or the other clutch members of gears 21, 22.

When screw 9 is being operated by power and yoke 29 shifts clutch member 27 from engagement with the clutch teeth of one of gears 21, 22 to engagement with the clutch teeth of the other of said gears shaft 62 is rotated a short distance in one direction or the other, as the case may be.

I claim:

1. In a mechanism of the character described the combination of a traverse carriage, a screw rotatably mounted in operative engagement with said carriage, two sets of ratchet and pawl means for rotating said screw in opposite directions respectively, a slidable clutch adapted for operatively connecting either of said ratchets with said screw, means governed by the movement of said carriage for shifting said clutch and means, operable by hand at a point remote from the mechanism for moving said clutch to a neutral position between said ratchets and for rotating said screw.

2. In a mechanism of the character described the combination of a traverse carriage, a screw rotatably mounted in operative engagement with said carriage, two sets of ratchet and pawl means for rotating said screw in opposite directions respectively, a slidable clutch adapted for operatively connecting either of said ratchets with said screw, means governed by the movement of said carriage for shifting said clutch, a shaft

mounted for rotation and for endwise movement, a gear on said shaft, a yoke connected with the clutch, a rack on said yoke operatively connected with said gear, said shaft, when rotated, being effective to shift said yoke for moving said clutch to a neutral position relatively to said ratchets and a second gear operatively connected with said screw, said first mentioned gear being shiftable axially by said shaft out of engaging relation with said rack and into engaging relation with said second gear whereby said screw is rotated by said shaft.

3. In a mechanism of the character described the combination of a traverse carriage, a screw rotatably mounted in operative engagement with said carriage, two sets of ratchet and pawl means for rotating said screw in opposite directions respectively, a slidable clutch adapted for operatively connecting either of said ratchets with said screw, a yoke connected with the clutch, means governed by the movement of said carriage for shifting said clutch, a shaft mounted for rotation and for endwise movement, a gear on said shaft, a rack on said yoke operatively connected with said gear, said gear, when rotated, being effective to shift said yoke for moving said clutch to a neutral position relatively to said ratchets, a second gear operatively connected with said screw, said first mentioned gear being shiftable axially by said shaft out of engaging relation with said rack and into engaging relation with said second gear whereby said screw is rotated by said shaft, and means in engagement with said first mentioned gear, when that gear is in engagement with said second gear, for preventing the movement of said clutch.

In witness whereof I hereby affix my signature this 21st day of September, 1928.

CHARLES F. VAN HOOK.