June 15, 1926.

1,588,930

R. ASHMEAD ET AL

CARPET WRAPPING MACHINE

Filed Feb. 13, 1925

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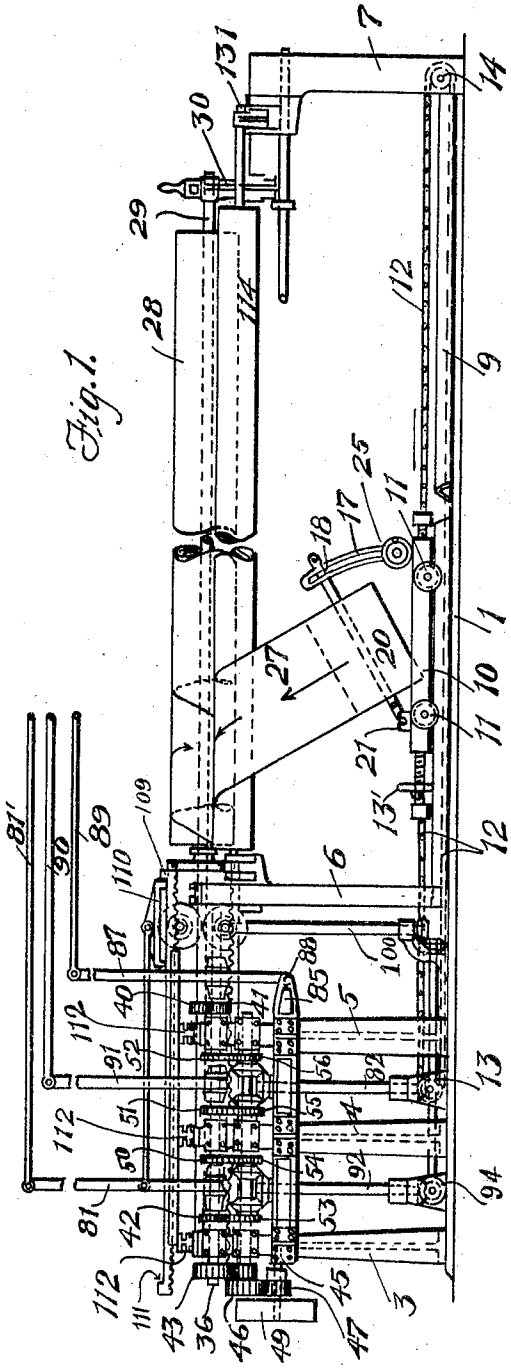


Fig. 1.

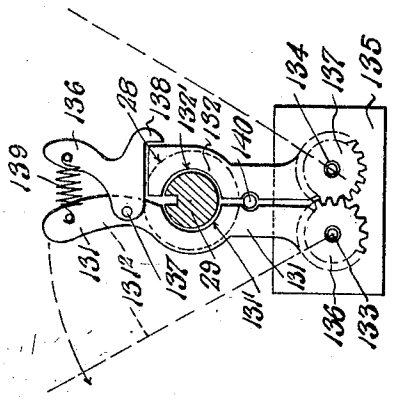


Fig. 11.

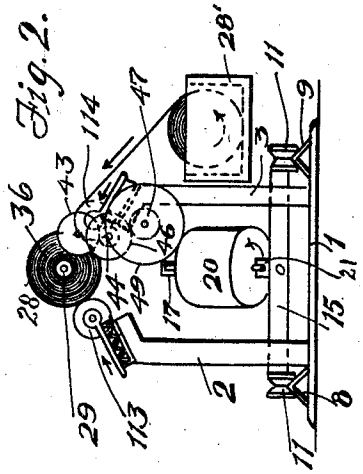


Fig. 2.

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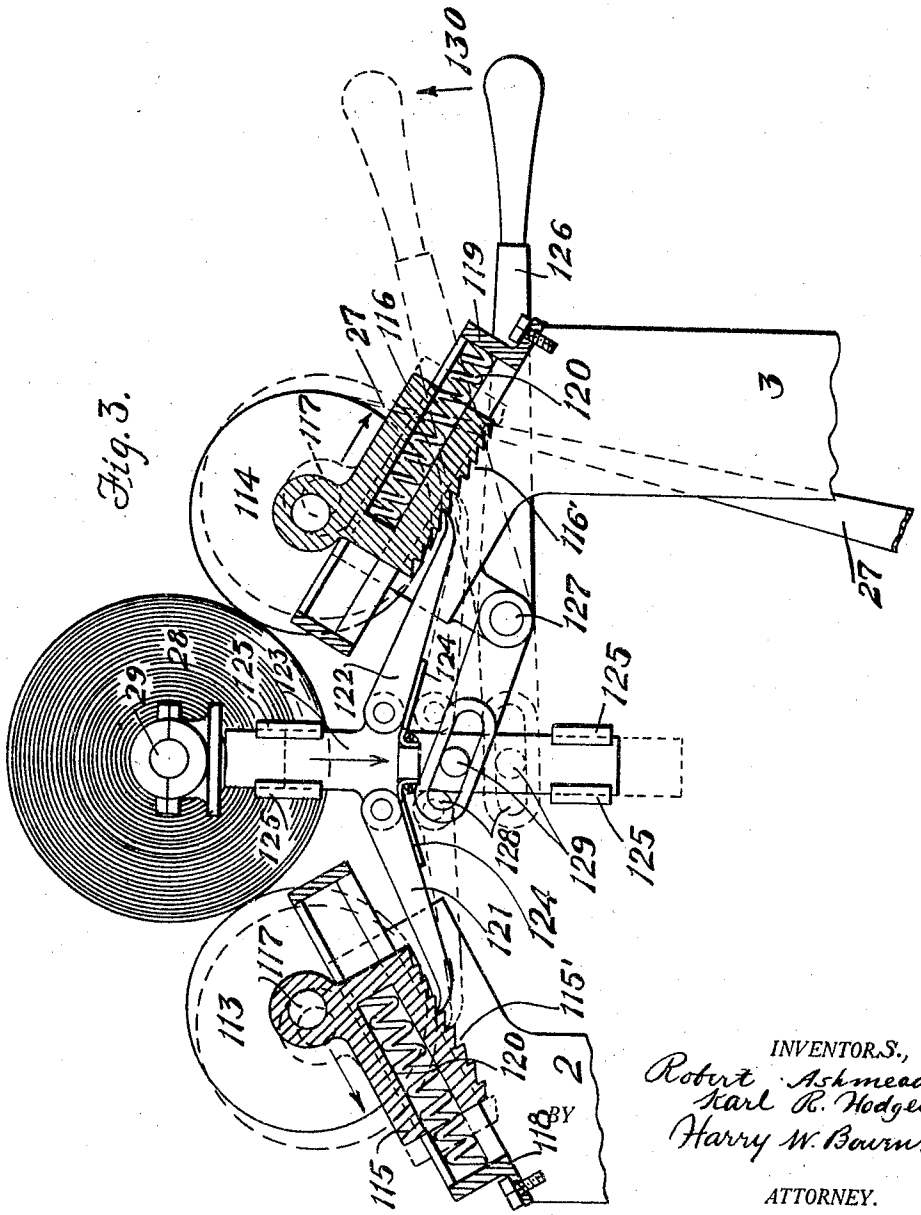
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Fig. 3.




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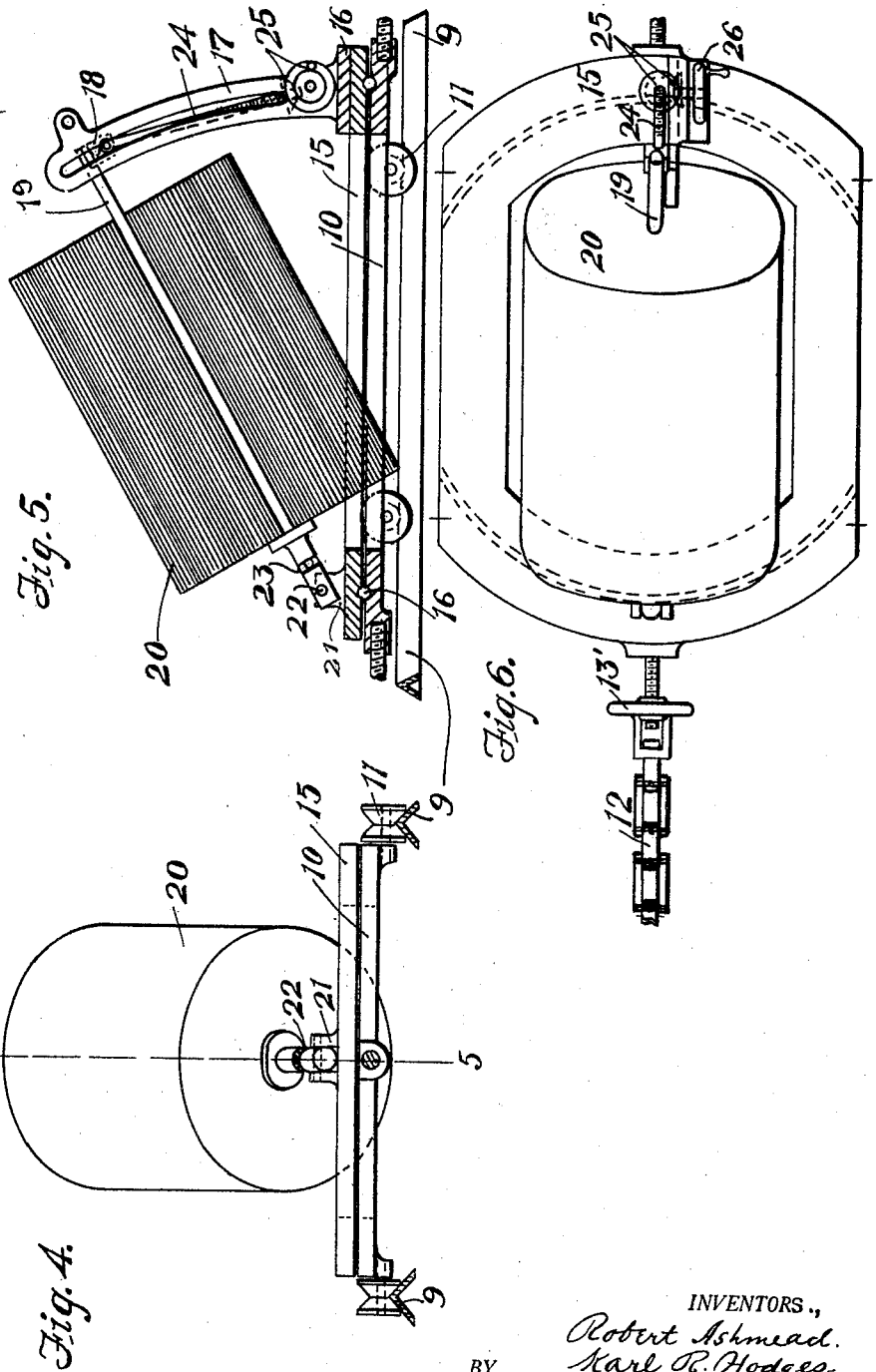
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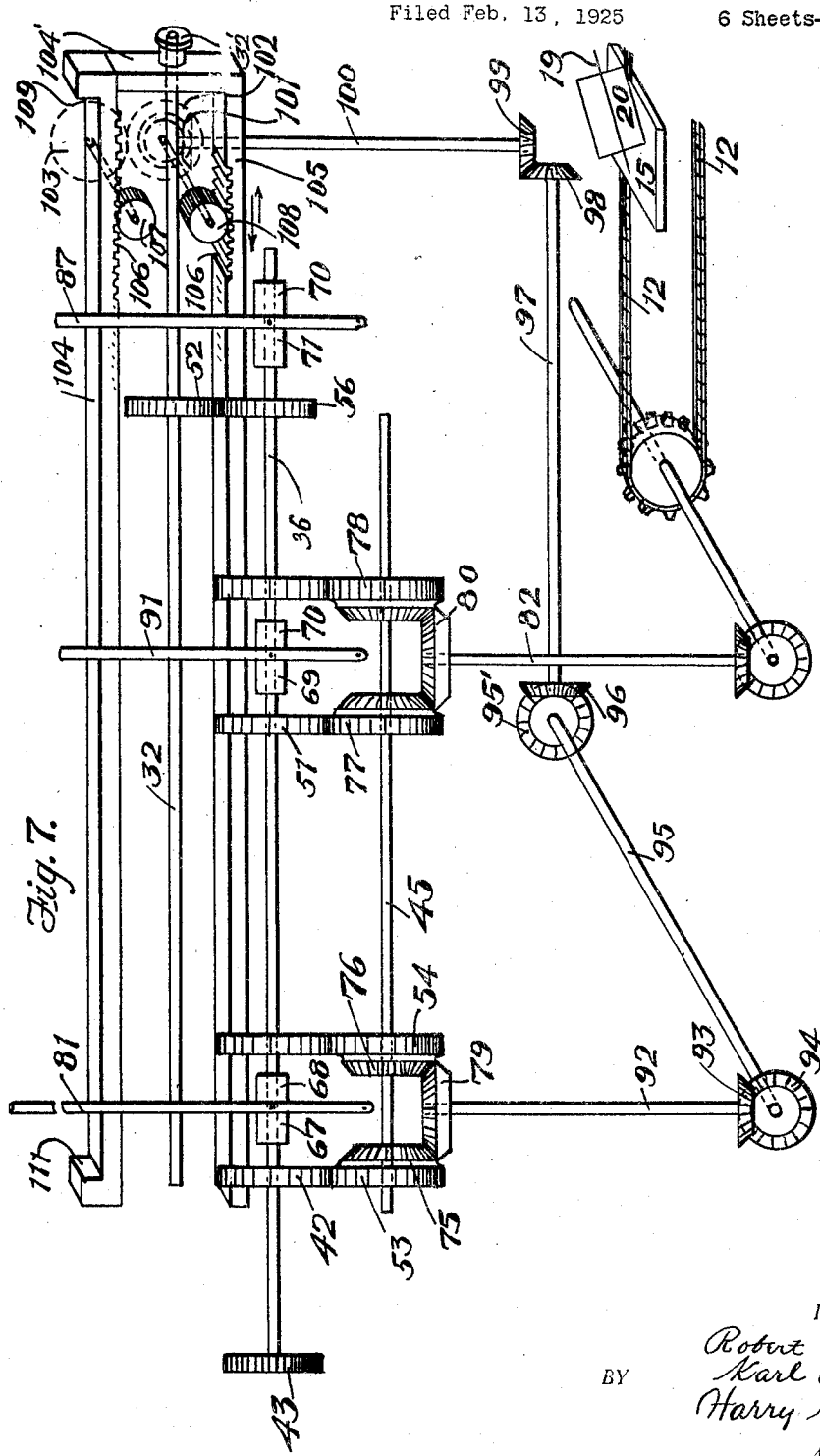


Fig. 7.

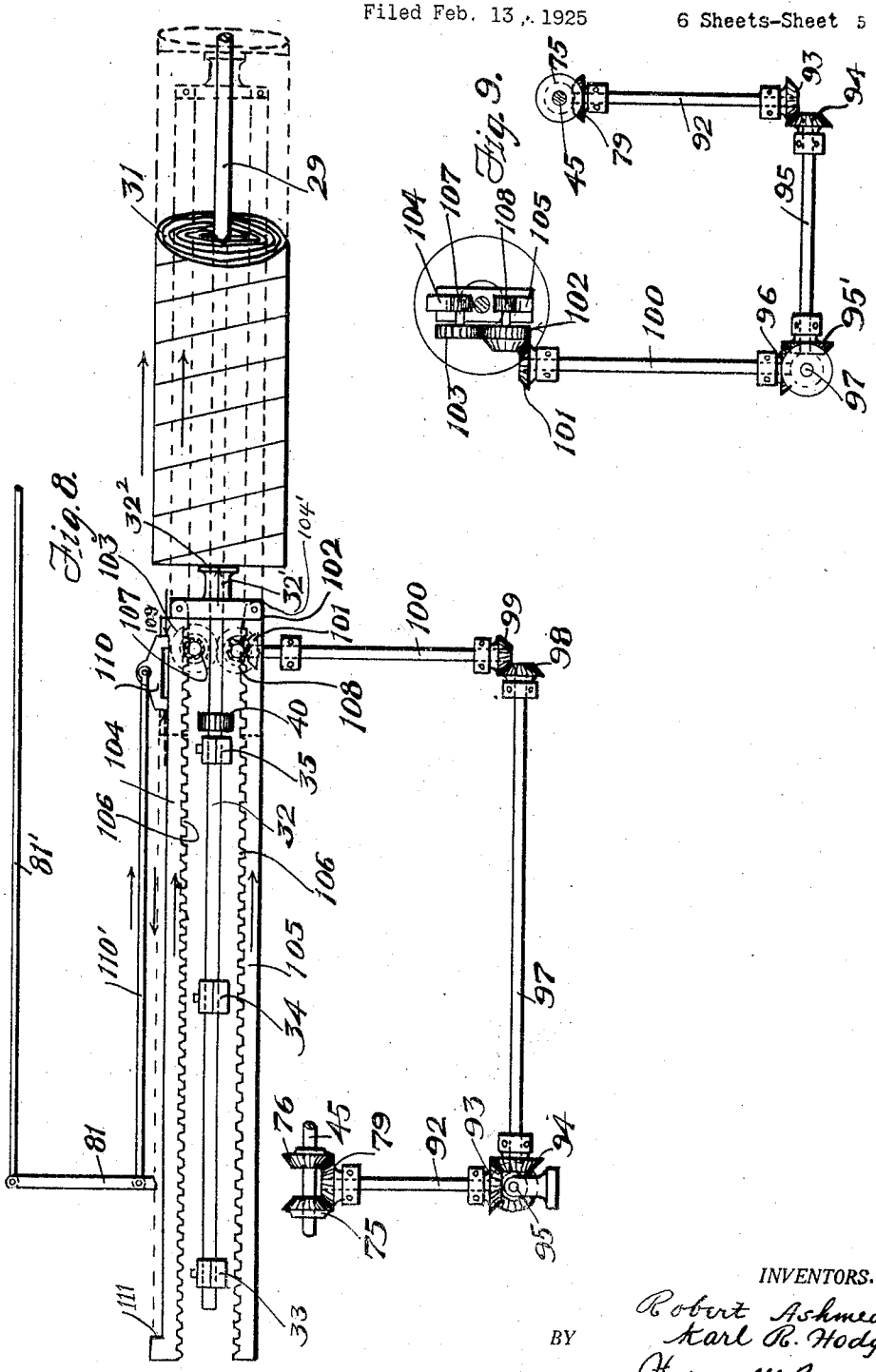
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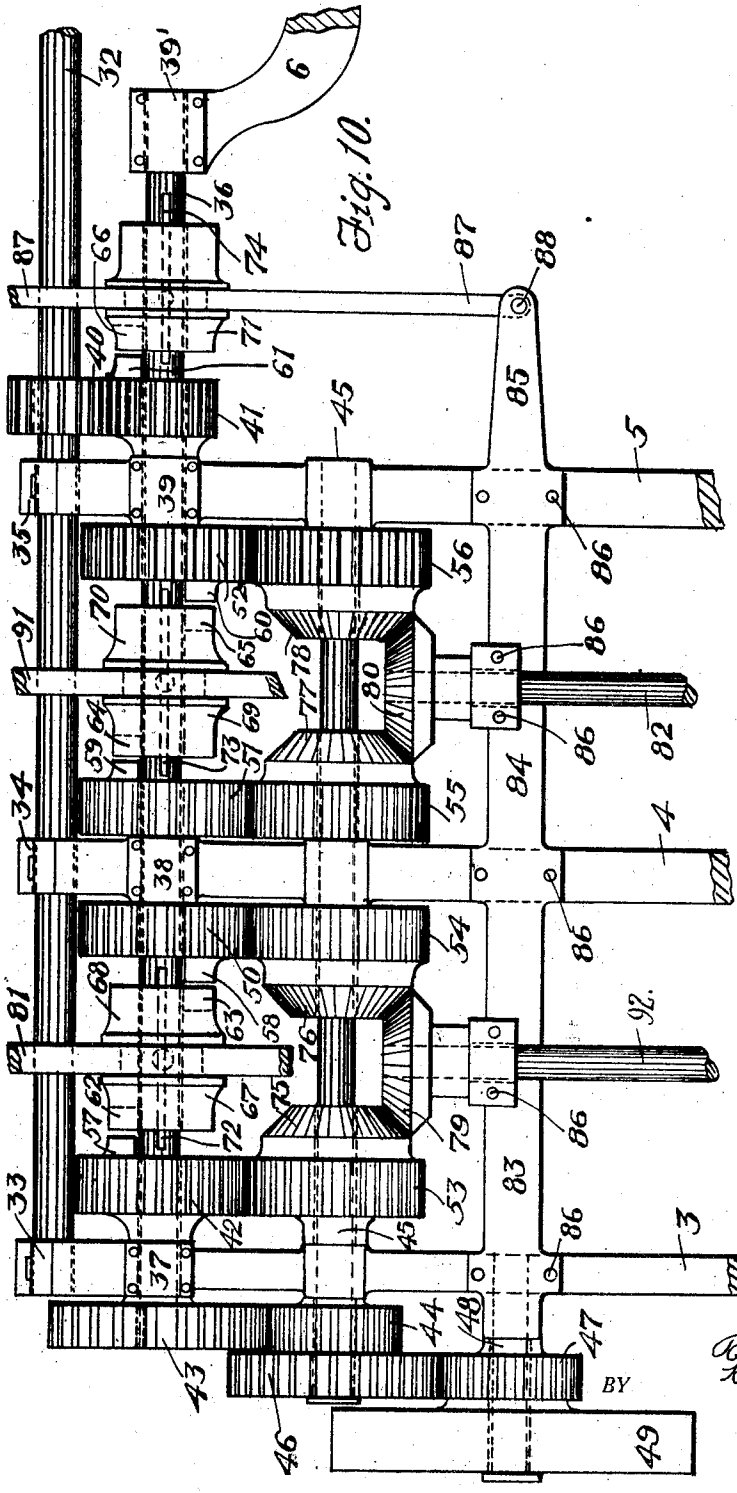


Fig. 10.

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# UNITED STATES PATENT OFFICE.

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## CARPET-WRAPPING MACHINE.

Application filed February 13, 1925. Serial No. 8,916.

This invention relates to improvements in machines for wrapping carpets. Its particular object is for placing a wrapper about a carpet or the like which has been rolled about a mandrel or shaft.

Broadly it comprises a part on which a length of carpet is first wound and a travelling member which rotatably supports a roll of wrapping paper that is to be wound about the carpet. Devices are provided for moving the roll of paper parallel with the axis of the rolled carpet and simultaneously rotating the roll of carpet. Devices are also provided for removing the roll of carpet from its mandrel after being wrapped. Further devices are provided for exerting pressure on the roll of carpet for smoothing out the paper as it is being wrapped, and, means for removing the pressure of these devices. Also means for varying the angle at which the strip of paper is delivered to the rotating mandrel or shaft.

Other objects will appear in the body of the specifications and will be particularly pointed out in the claims.

Referring to the drawings:

Fig. 1 is a general side elevational view showing the various control levers, the movable carriage for supporting the roll of wrapping paper, and the roll of carpet to be wrapped.

Fig. 2 is an end elevational view of Fig. 1 looking from the left hand end of the machine showing the two presser rolls and the roll of wrapping paper.

Fig. 3 is an enlarged end view of the presser rolls similar to Fig. 2 and illustrating the ratchet devices for removing the rolls away from the roll of carpet.

Fig. 4 is an end elevational view of the roll of paper, and its supporting and movable platform.

Fig. 5 is a sectional side view of Fig. 4, on the line 5—5 of Fig. 4.

Fig. 6 is a plan view of Fig. 4.

Fig. 7 is a detail enlarged side view of the mechanism for operating the rack which removes the roll of carpet from the machine, and automatically stops this part of the machine.

Fig. 8 is a plan view of the carpet removing mechanism.

Fig. 9 is a detail view of the rack operating mechanism.

Fig. 10 is an enlarged view of the change gear mechanism, and

Fig. 11 is a detail view on the line 11—11 of Fig. 1.

Referring to the drawings in detail:

1 designates the base part of the machine 2 and 3 a pair of uprights at the left hand end of the machine and 4, 5, and 6 other pairs of supporting uprights. It is understood that corresponding uprights are located on the opposite side of the machine. 7 is a shaft supporting upright at the outer right hand end of the machine. Located at or near the opposite side edges of the base piece 1 are the inverted V-shaped runways or track members 8 and 9 on which is placed the wheels of the truck 10. 11 are the wheels on the truck which engage these runways or tracks. Attached to the opposite ends of this truck is the sprocket chain 12 which passes around the sprocket wheels 13 and 14. A suitable tension device for the chain is shown at 13'. Mounted on the platform 10 of the truck is a movable plate 15 having the anti-friction balls 16 located between the parts 10 and 15, whereby the plate can readily turn in a horizontal plane. 17 designates a slotted sector bar on which is mounted for upward and downward movement the block or part 18 which supports one end of the shaft 19 that carries the roll of wrapping paper 20. The lower end of this shaft is pivotally supported in the foot piece 21 by means of the pin 22. 23 is an antifriction device for the lower end of the shaft 19. 24 is a threaded rod that is operated by the bevel gears 25, and the hand wheel 26, for varying the angle of the shaft 19 and its roll 20. 27 designates one end of the paper of the roll that is being wrapped around the roll of carpet 28 which is supported on the hollow shaft or mandrel 29 which is rotatably supported in a bearing at its outer end in the upright part 30 of the main frame and its opposite end in the uprights 4, 5, and 6.

This mandrel is driven by means of a shaft 32 which is suitably connected thereto, as indicated at 32' which may be termed the mandrel driving shaft and is rotatably supported in the bearings 33, 34, and 35 of the upright supports 3, 4, 5, which constitute a portion of the main frame of the machine. The end view of this shaft is shown in Fig. 3.

This shaft is driven from the shaft 36

that is also mounted in the uprights 3, 4, 5, and 6. The bearing boxes being indicated at 37, 38, 39, and 39'. Mounted on the shaft 32 is a gear 40 which meshes with the gear 41 on the shaft 36. Also secured to the shaft 36 is a gear 42 and a gear 43 on its outer left hand end. This gear meshes with the smaller gear 44 that is secured to the shaft 45 and on the outer end of this shaft is secured the gear 46 that meshes with the gear 47 on the stub shaft 48 which shaft is secured to the upright 3. 49 designates the main drive pulley for operating the different sets of mechanism. The gears 42, 50, 51 and 52 are loosely mounted to revolve on the shaft 36. The gears 53, 54, 55 and 56 are also loosely mounted to revolve on the shaft 45. The gears 42, 50, 51, 52, and 41 are formed with projections 57, 58, 59, 60, and 61. These projections are designed to enter or be engaged by the respective recesses 62, 63, 64, 65, and 66 in the respective clutch members 67, 68, 69, 70, and 71, which members are slidably mounted on the shaft 36 by means of the spline and groove connections indicated at 72, 73, and 74, whereby when these different clutch members are moved on the shaft 36 the different sets or trains of mechanism may be operated as will be described. The gears 53, 54, 55, and 56 are each formed with an integral bevel gear 75, 76, 77, and 78. The bevel gears 75 and 76 mesh with the bevel gear 79 and the bevel gears 77 and 78 mesh with the bevel gear 80 whereby the shafts 82 and 92 may be operated in the same directions. Secured to the uprights 3, 4, and 5 are the brace bars 83, 84, and 85 by means of the rivets or bolts 86. Pivotally attached to the arm 85 is a clutch shift lever 87 at the point 88. This lever 87 is pivotally connected to the shift rod 89 which may be termed the roll operating lever, whereby when the rod 89 is operated the recess 66 in the clutch member 71 will engage the projection 61 of the gear 41 and operate the shaft 32 which drives the roll of carpet on the roll shaft 29. The carpet is shown in Fig. 2 as being wound on this shaft from the box 28', or, it may be considered as coming from a carpet weaving loom.

For the purpose of operating the truck 10 on which the roll of paper 20 is mounted there is attached the chain 12 to the opposite ends of this truck, as already described. The shaft 82 operates the drive gear 13 when the shift rod 90 operates the shift lever 91 and moves the clutch member 69 causing the recess 64 to receive the projection 59 on the gear 51, whereby the gears 51, 55, and 80 are operated to move the truck 10 along the tracks 9 causing the paper 27 to be drawn off and coiled around the roll of carpet 28; it being understood that the roll of carpet 28 is meanwhile being driven from the shafts 32, 36, and the gears 40, 41, 42, 43, 44, 46, and 47 from the pulley 49. Upon moving the shift lever 90 in the opposite direction the reverse operation will take place.

Referring now to the construction of the devices for operating the carpet ejector mechanism and reversing the same. 92 designates a shaft that is driven by the bevel gear 79 which carries a bevel gear 93 at its lower end which meshes with a bevel gear 94 that drives the cross shaft 95 which carries the bevel gear 95' at its opposite end which operates the gear 96, shaft 97, gears 98 and 99, shaft 100, gear 101, gears 102, and 103. The gears 107 and 108 mesh with the rack bars 104 and 105, the teeth 106 of which are located on their inner edges, as shown. These bars are connected by the piece 104'. It will be seen that by means of the shift lever 81 the direction of rotation of the pinions 107 and 108 which mesh with these racks may be reversed.

After the carpet has been wrapped with paper from the roll 20 the completed roll is then ready to be removed from the machine, which is accomplished as follows: The operator moves the shift rod 81' which, through the lever 81 moves the clutch block 67 so that the projection 57 on the gear 42 enters the recess 62 whereby the shaft 92 is operated. The gears 107 and 108 will now be operated through the mechanism just described causing the two rack bars 104 and 105 to move forward towards the right hand. The part $32^2$ will engage the end of the rolled and wrapped carpet causing it to be moved along on the wrapping shaft 29 until it reaches the end of this shaft. At this point in the operations the shoulder part 111 on the end of the bar 104 will engage the slidable member 110 which is connected through the rod 110' to the clutch shift lever 81 and moves one of the clutch members 67 or 68, into a neutral or inoperative or mid-position, thus stopping the outward movement of the rack bars 104 and 105. The roll of wrapped carpet is now removed from the machine. The rack bars are now returned to their original position when an operator moves the rod 81', shift lever 81, clutch member 67 and 68 so as to cause the gears 107 and 108 to rotate in the opposite direction whereby the rack bars will be returned to their original position. They will be automatically stopped or brought to rest when the shoulder part 109 will engage the slidable member 110 which will move the rod 110', shift lever 81 and move the clutch members 67 and 68 into their neutral or inoperative position, thus bringing the rack members 104 and 105 to rest. The machine is now ready for another length of carpet to be wound onto the tube 29.

As shown in Fig. 1 the rack bars are slidably supported on the pieces 112 at the upper ends of the supports 3, 4, and 5.

Referring now to the construction shown in Fig. 3 which is for the purpose of placing a pair of rollers, under pressure, in engagement with the roll of carpet while it is being wrapped with the strip of paper 27, as it unwinds from the roll 20. 113 and 114 designates two presser rollers, which are slidably mounted on the members 115 and 116 which carries the pivots 117. The members 115 and 116 rest upon the base pieces 118 and 119, which are secured to the uprights 2 and 3. See Fig. 2. Located within each of the slidable members 115 and 116 is a coiled expansible spring 120 for normally moving the presser rollers forward against the carpet roll 28. For retracting these presser rollers each of the slidable members 115 and 116 are formed on their lower edges with a rack 115′ and 116′ which is engaged by the pawls 121 and 122 that are pivotally connected to the post 123. Leaf springs 124 normally operate to elevate the pawls and retain them in engagement with the racks. The post 123 is slidably mounted in the main frame to which the guide pieces 125 are secured. This post is movable up and down by means of the lever 126 which is pivotally connected to the upright 3 at 127. It is formed with a slot 128 which receives a pin 129 on the post 123 whereby when the lever 126 is operated and moved into the dotted position as indicated by the arrow 130, the presser rollers 113 and 114 through the pawl and ratchet construction are moved away from the roll of carpet 28. This lever is operated just prior to the removal of the wrapped roll of carpet from the machine.

The shafts of the presser rollers are mounted in the bearings 131 at their outer ends, only one of which is shown in Fig. 1.

It should be stated that in order to facilitate the removal of the rolled or wrapped carpet the part 30 which supports the outer end of the shaft 29 must be temporarily removed. This is accomplished as follows: 131 and 132 designate two levers that are pivotally supported on the two studs 133 and 134 which are secured in the fixed part 135 of the frame. Formed integrally with the two levers are the gears 136 and 137, which mesh with each other, as shown. Each lever is formed with a semi-circular recess 131′ and 132′ which match to form a bearing for the outer end of the shaft 29 when the levers are in the closed positions shown. Pivotally attached to the lever 131 is a latch 136 at the point 137. 138 designates a depending part of the latch which retains the levers in a closed position. A spring 139 normally retains the latch in its locking position. 140 is a fixed stud in the frame 135 for the purpose of entering matching recesses in the levers for affording additional support for the levers and shaft 29. When a roll of carpet is to be removed the latch 136 is released and the levers moved to the dotted or open line positions a sufficient distance to permit the roll of carpet to pass between the same. After the carpet has been removed by the pusher bars 105 and 106, the operator then returns the levers to their original positions with the end of the shaft 29 in the semi-circular recesses 131′ and 132′. During the removal of the roll of carpet it is supported as well as the free end of the shaft 29 by the two longitudinally arranged cylinders 113 and 114. It is obvious that when the operator moves the hand lever 131 the other lever 132 will be moved through the gear connections 136 and 137 into the dotted line positions.

What we claim is:

1. In a winding machine, the combination of a main supporting frame, a rotatable member on which a length of the material is to be wound, a travelling carriage, means for operating the same, a rotatable member to receive a roll of the winding material and mounted on the carriage, means for supporting the rotatable member, means for varying the vertical angle of the supporting means of the roll, and connecting means between the rotatable member and the carriage for operating the member simultaneously with the travel of the carriage.

2. In a carpet winding machine, the combination, of a frame, means for rotatably supporting a shaft therein on which the carpet is wound, means for winding material around the wound carpet comprising a travelling member on which the winding material is mounted, a vertically adjustable shaft on the travelling member for supporting the said winding material, means for varying the vertical angle of the shaft on which the winding material is mounted.

3. In combination, a shaft on which a roll of the material to be wrapped is wound, means for rotating the shaft, means for slidably removing the said roll from the shaft and means for automatically stopping the material removing means at the termination of the roll removing operation.

4. In combination, a shaft, on which a roll of the material to be wrapped is wound, means for rotating the shaft, means for removing the said roll from the shaft, and means for automatically stopping the material removing means at the termination of the roll removing operation, said roll removing means comprising a main drive shaft, a second shaft operated therefrom, and operative connecting means between the second shaft and the first mentioned shaft, a clutch mechanism on the main drive shaft, and means operated by the said roll removing means for operating the clutch mechanism which controls the stopping of the roll removing means.

5. A carpet winding mechanism compris-

ing a rotatable shaft, on which the carpet to be wound is placed, pressure rollers engaging the roll of carpet, means for moving the pressure rollers away from the periphery of the roll of carpet, and ratchet means for retaining the pressure rollers in their removed positions.

6. A carpet winding mechanism comprising a rotatable shaft, on which the carpet to be wound is placed, pressure rollers engaging the roll of carpet, means for moving the rollers away from the periphery of the roll of carpet, and means for retaining the pressure rollers in their removed positions, comprising slidable members on which the pressure rollers are mounted having a rack formed thereon, a lever, pawls engaging the rack, and operative connecting means between the pawls and the lever.

7. A machine for winding material about a roll of carpet, comprising a rotatable shaft for supporting the roll of carpet, means for removing the roll of carpet from the rotatable shaft comprising a rack bar, means for operating the said bar and means for automatically stopping the movement of the said bar at a predetermined point in its travel.

8. In combination, a member comprising two bars having gear teeth, gears engaging the teeth, means for operating the gears in opposite directions to drive the bars, and means for automatically stopping the operation of the gears at the ends of the travel of the bars in opposite directions.

9. In combination, a member comprising two bars having gear teeth, gears engaging the teeth, means for operating the gears in opposite directions to drive the bars, and means for automatically stopping the operation of the gears at the ends of the travel of the bars in opposite directions, said stopping means comprising a slidable member, projections on the bars engaging the member, and operative connecting means between the member and the gear operating means.

10. In a carpet winding machine, the combination with a base piece, trackways on the base piece, a truck having wheels which engages the trackways, means for moving the truck in either direction along the trackways, means for rotatably supporting a roll of winding material on the truck, movable plate turn table means on the truck to permit the roll of said winding material to be moved in a horizontal plane relative to the truck, and means for varying the vertical angle of the rotatable roll supporting means.

11. In combination, a pair of rack bars which are secured together at one end to form a U-shaped member, the racks being formed on their inner opposite edges with teeth, a pinion engaging each rack bar, a pair of gears for rotating the pinions in opposite directions for moving the rack bars, and means for operating the gears.

12. In combination, a pair of rack bars which are secured together at one end to form a U-shaped member, the racks being formed on their inner opposite edges with teeth, a pinion engaging each rack bar, a pair of gears for rotating the pinions in opposite directions for moving the rack bars, means for operating the said gears, comprising a main shaft, a clutch operated by the main shaft, a second shaft, gears thereon and controlled by the clutch of the main shaft, means for operating the main shaft, and connecting means between the second shaft and the said pair of gears.

13. The combination with a rotatable member, of spring actuated rollers engaging the rotatable member, a member for slidably supporting each of the spring actuated rollers, a rack on the slidable members, a vertically movable pawl supporting member, pawls on the said vertically movable member for normally engaging each rack, a lever formed with a slot, a pin on the movable pawl supporting member which is located in the slot, said lever operating to move the spring actuated roller supporting members and the spring actuated rollers thereon away from the rotatable member.

14. The combination, in a carpet winding machine comprising, a main shaft, a gear thereon, a carpet winding shaft, a second shaft for rotating the carpet winding shaft, a clutch on the main shaft, a gear fixed to the second shaft, means for moving the clutch into engagement with the gear on the main shaft for operating the second shaft, means for simultaneously supporting and moving a roll of winding material parallel with the axis of the rotating carpet winding shaft, and means for automatically stopping the movement of the roll of winding material at the end of the winding operation.

15. In a device in a carpet winding machine, means for rotatably supporting a roll of winding material, track means for movably supporting the roll, a supporting shaft for the roll, a slotted sector bar for adjustably supporting one end of the said roll supporting shaft, a block in the said slot, to which that end of the said shaft is supported and means for moving the block in the slot for varying its inclined vertical position as described.

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