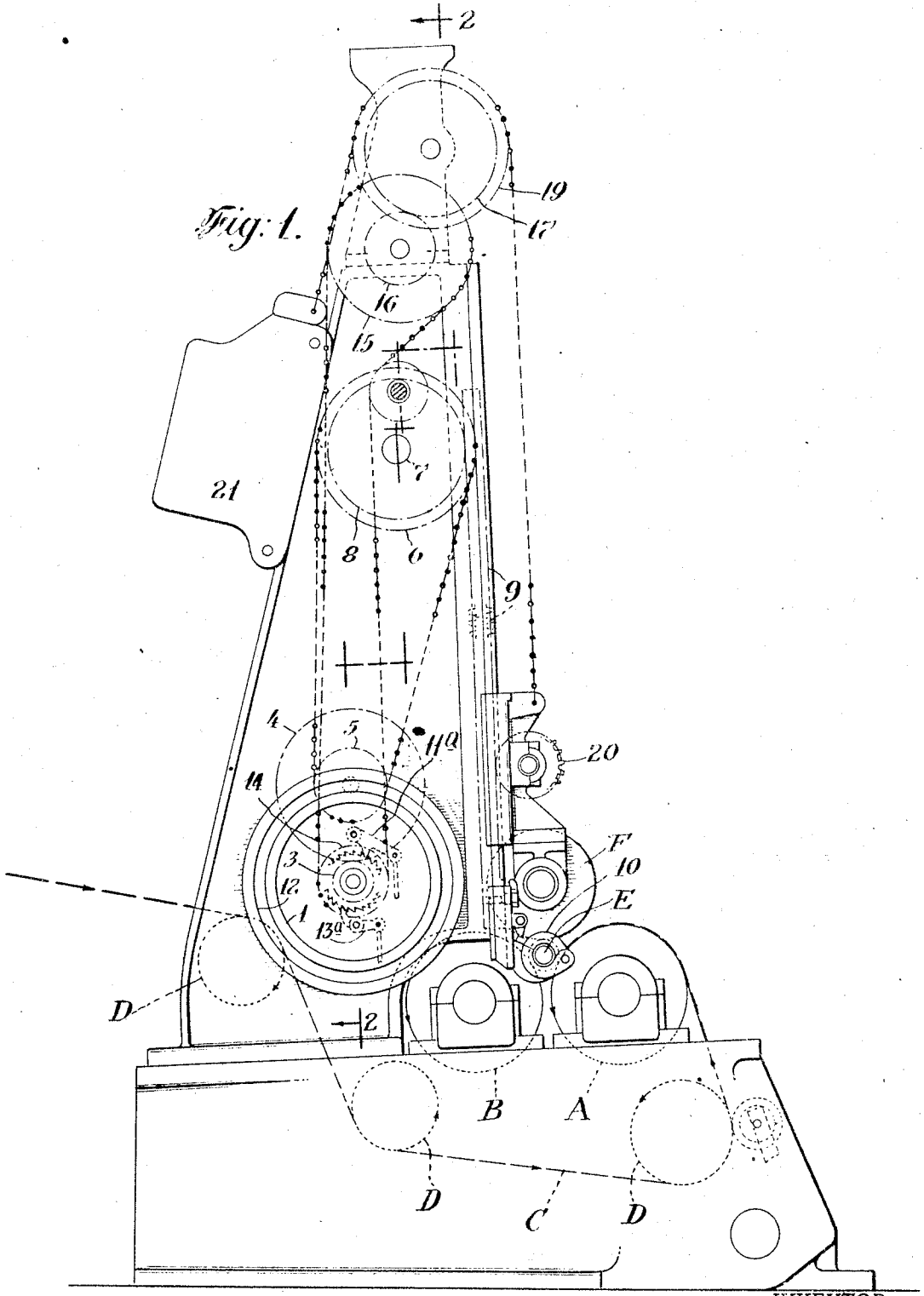
July 24, 1928. 1,678,326

J. A. CAMERON

WINDING MACHINE

Filed April 22, 1927 3 Sheets-Sheet 1

Fig. 1.



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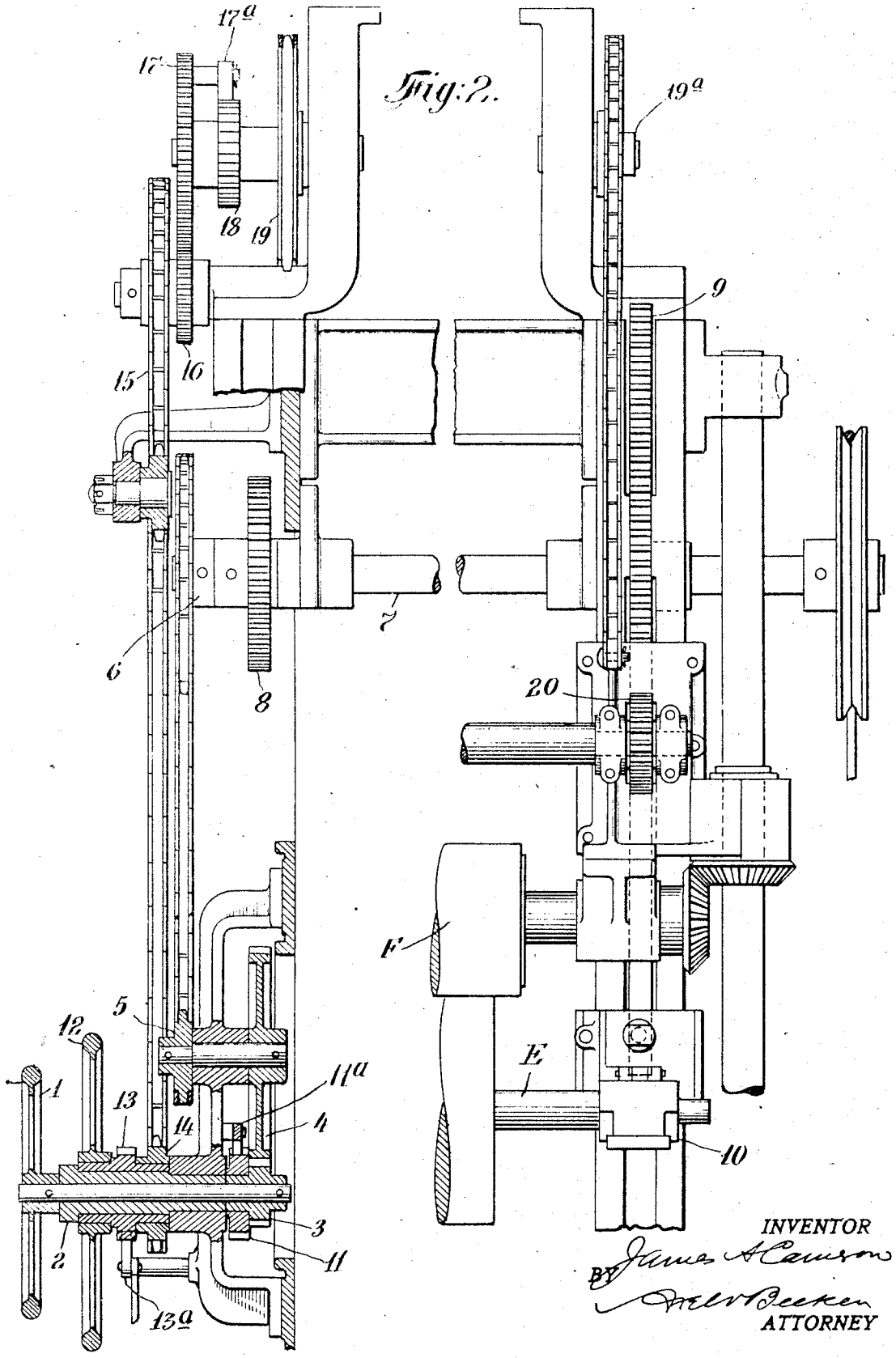
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Fig: 2.



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WINDING MACHINE

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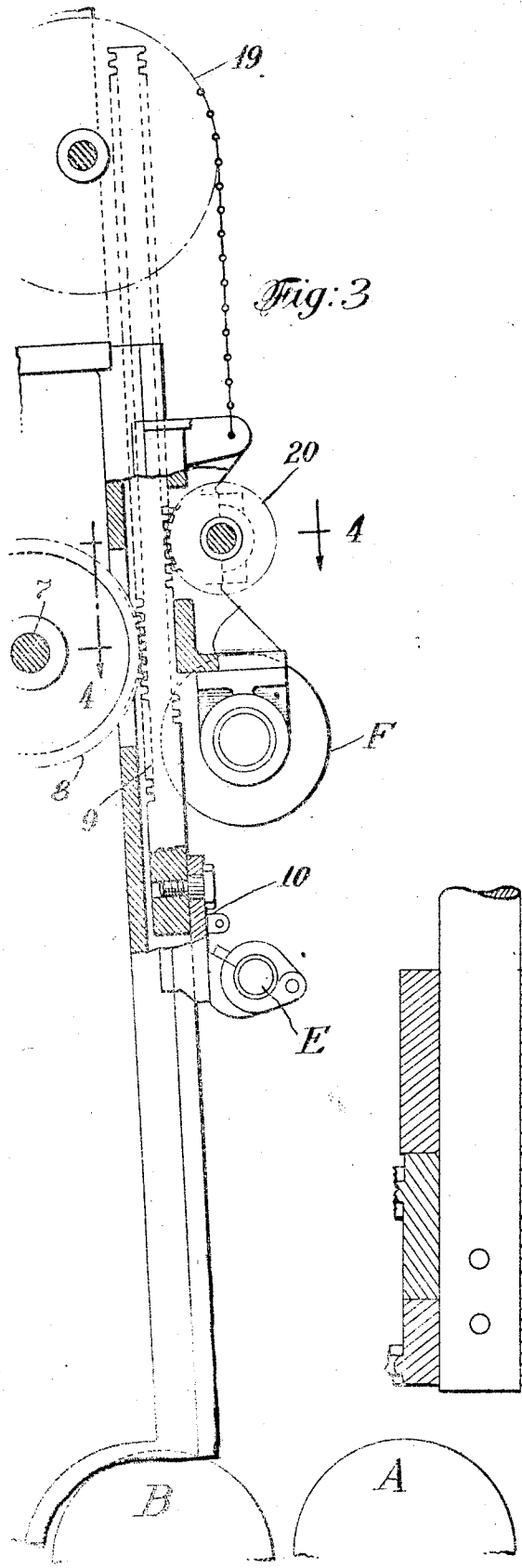
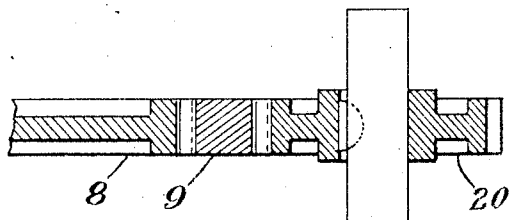


Fig. 3.



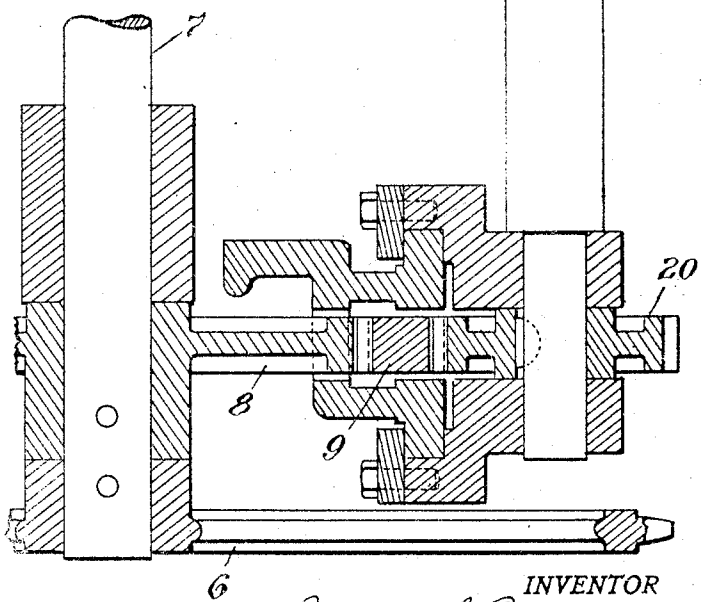


Fig. 4.

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UNITED STATES PATENT OFFICE.

JAMES A. CAMERON, OF BROOKLYN, NEW YORK, ASSIGNOR TO CAMERON MACHINE COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

WINDING MACHINE.

Application filed April 22, 1927. Serial No. 185,731.

This invention relates to winding machines and has more particularly reference to controlling means employed for the purpose of maintaining parallelism of the winding and top pressure rolls.

The main object and feature of the invention resides in the use of a reciprocatory equalizing device that controls the parallelism of both the winding and the top pressure roll.

In the accompanying drawings the invention is disclosed in a concrete and preferred form in which

Fig. 1 is a view, largely diagrammatic, in side elevation of a winding machine embodying one form of the invention.

Fig. 2 is a vertical sectional view substantially on the plane of line 2—2 of Fig. 1.

Fig. 3 is an enlarged detail view, with parts broken away and in section, of some of the parts shown in Fig. 1.

Fig. 4 is a horizontal sectional view substantially on the plane of line 4—4 of Fig. 3.

In the type of machine selected for illustration, A indicates the front winding and B the rear winding drum. Web C is led from a suitable source over idlers D and thence up over the front winding drum to winding roll or shaft E mounted in a bearing 10. The machine shown is therefore of the type commonly referred to as a surface winding machine in that the winding roll or shaft is rotated by frictional engagement in the valley between the two drums. F is the top pressure or riding roll that rests upon the surface of the wound material. Both the winding roll and the top pressure roll are displaceable with respect to the winding drums by the accumulation of material on the winding roll in a manner well understood.

9 indicates a reciprocatory equalizing device that controls the parallelism of both rolls, which device, in the present instance, consists of two double-faced racks, one at each end of the rolls, that are slidable in the framework. This equalizing device is connected to one of the rolls, here the winding roll, and as shown in Fig. 3 winding roll bearing 10 is bolted to the racks. The other roll, here the top pressure roll, is provided with rotatable members, such as gears or pinions 20 keyed to the same shaft and located at opposite ends of the rolls, to engage with one face of the racks. Other rotatable members, such as gears or pinions 8, are mounted independently of the rolls and at opposite ends thereof in line with the racks and engage the other face of the racks. Gears 8 are keyed to shaft 7. It will now be seen that as the winding roll rises it carries the racks or equalizing device with it and these racks, by engagement with gears 8, maintain the winding roll in parallelism; at the same time pinions 20 carried by the top pressure roll engage the other face of the racks and maintain the top pressure roll in parallelism.

In machines of this character it is necessary or desirable to lift and lower the winding roll at will and also to lift and lower the top pressure roll independently of the winding roll. Any suitable means may be employed for this purpose but preferably such means are constructed as follows: 1 indicates a handwheel secured to a shaft that is freely rotatable in bushing 2 and which carries at its inner end a pinion 3 that meshes with gear 4. Mounted on the same stud as gear 4 is a sprocket 5 over which passes a chain that connects with sprocket 6 mounted on shaft 7. Rotatable members 8 that engage one face of the racks are likewise mounted on shaft 7 so that rotation of handwheel 1 causes rotation of gears 8 and movement of racks 9. Moving with pinion 3 is a ratchet 11 with which is associated a pawl 11ª which acts as a means to prevent backward rotation so that the winding roll can be sustained in an elevated position if desired as will be understood. Rotatably mounted on sleeve 2 is another handwheel 12 with which are associated ratchet 13 and sprocket 14. A chain passes from sprocket 14 to a second sprocket 15 and moving with the latter is a pinion 16 that meshes with a gear 17. This latter gear is provided with a pawl 17ª that engages a ratchet 18 mounted to move with sprocket 19. On the other side of the machine there is another sprocket 19ª preferably mounted independently of sprocket 19. Flexible connections 21 pass over sprockets 19 and 19ª which connect at one end to the bearing of the top pressure roll and at the other end to counter-weights 21 that slide on the framework. Rotation of handwheel 12 therefore will raise or lower the top pressure roll, but it will be seen that when the top pressure roll is lifted by

the winding roll the back-gearing is not rotated on account of the presence of pawl 17a. Ratchet 13 is provided with a pawl 13a that acts as a stop to prevent backward rotation in a manner well understood.

I claim:

1. In a winding machine, a winding roll displaceable by accumulation of material thereon, a top pressure roll displaceable with the winding roll, and a reciprocatory equalizing device to control the parallelism of both rolls.

2. In a winding machine, a winding roll displaceable by accumulation of material thereon, a top pressure roll displaceable with the winding roll, and reciprocatory racks to control the parallelism of both rolls.

3. In a winding machine, a winding roll displaceable by accumulation of material thereon, a top pressure roll displaceable with the winding roll, a reciprocatory equalizing device displaceable with one of said rolls, rotatable members, following the movement of displacement of the other of said rolls and located at opposite ends of said rolls, to engage the device, and rotatable members, mounted independently of the rolls and located at opposite ends of said rolls, to engage the device.

4. In a winding machine, a winding roll displaceable by accumulation of material thereon, a top pressure roll displaceable with the winding roll, reciprocatory racks displaceable with one of said rolls, rotatable members, following the movement of displacement of the other of said rolls and located at opposite ends of said rolls, to engage the racks, and rotatable members, mounted independently of the rolls and located at opposite ends of said rolls, to engage the racks.

5. In a winding machine, a winding roll displaceable by accumulation of material thereon, a top pressure roll displaceable with the winding roll, a reciprocatory equalizing device displaceable with the winding roll, rotatable members displaceable with the top pressure roll and located at opposite ends of said roll to engage the device, and rotatable members mounted independently of the rolls and located at opposite ends of said rolls to engage the device.

6. In a winding machine, a winding roll displaceable by accumulation of material thereon, a top pressure roll displaceable with the winding roll, reciprocatory racks displaceable with the winding roll, rotatable members displaceable with the top pressure roll and located at opposite ends of said roll to engage the racks, and rotatable members mounted independently of the rolls and located at opposite ends of said rolls to engage the racks.

7. In a winding machine, a winding roll displaceable by accumulation of material thereon, a top pressure roll displaceable with the winding roll, and reciprocatory double-faced racks to control the parallelism of both rolls.

8. In a winding machine, a winding roll displaceable by accumulation of material thereon, a top pressure roll displaceable with the winding roll, reciprocatory double-faced racks displaceable with one of said rolls, rotatable members, following the movement of displacement of the other of said rolls, and located at opposite ends of said rolls, to engage one face of the racks, and rotatable members, mounted independently of the rolls and located at opposite ends of the rolls, to engage the other face of the racks.

9. In a winding machine, a winding roll displaceable by accumulation of material thereon, a top pressure roll displaceable with the winding roll, reciprocatory double-faced racks displaceable with the winding roll, rotatable members displaceable with the top-pressure roll, and located at opposite ends of said roll, to engage one face of the racks, and rotatable members mounted independently of the rolls, and located at opposite ends of said rolls to engage the other face of the racks.

10. In a winding machine, a winding roll displaceable by accumulation of material thereon, a top pressure roll displaceable with the winding roll and independently thereof, a reciprocatory equalizing device to control the parallelism of both rolls, and means to lift the top pressure roll independently of the winding roll.

11. In a winding machine, a winding roll displaceable by accumulation of material thereon, a top pressure roll displaceable with the winding roll and independently thereof, reciprocatory racks to control the parallelism of both rolls, and means to lift the top pressure roll independently of the winding roll.

12. In a winding machine, a winding roll displaceable by accumulation of material thereon, a top pressure roll displaceable with the winding roll and independently thereof, a reciprocatory equalizing device displaceable with one of said rolls, rotatable members, following the movement of displacement of the other of said rolls and located at opposite ends of said rolls, to engage the device, rotatable members, mounted independently of the rolls and located at opposite ends of said rolls to engage the device, and means to lift the top pressure roll independently of the winding roll.

13. In a winding machine, a winding roll displaceable by accumulation of material thereon, a top pressure roll displaceable with the winding roll and independently thereof, reciprocatory racks displaceable with one of said rolls, rotatable members, following the movement of displacement of the other of said rolls and located at opposite ends of

said rolls, to engage the racks, rotatable members, mounted independently of the rolls and located at opposite ends of said rolls, to engage the racks, and means to lift the top pressure roll independently of the winding roll.

14. In a winding machine, a winding roll displaceable by accumulation of material thereon, a top pressure roll displaceable with the winding roll and independently thereof, a reciprocatory equalizing device displaceable with the winding roll, rotatable members displaceable with the top pressure roll and located at opposite ends of said roll, to engage the device, rotatable members mounted independently of the rolls and located at opposite ends of said rolls to engage the device, and means to lift the top pressure roll independently of the winding roll.

15. In a winding machine, a winding roll displaceable by accumulation of material thereon, a top pressure roll displaceable with the winding roll and independently thereof, reciprocatory racks displaceable with the winding roll, rotatable members displaceable with the top pressure roll and located at opposite ends of said roll to engage the racks, rotatable members mounted independently of the rolls and located at opposite ends of said rolls to engage the racks, and means to lift the top pressure roll independently of the winding roll.

16. In a winding machine, a winding roll displaceable by accumulation of material thereon, a top pressure roll displaceable with the winding roll and independently thereof, reciprocatory double-faced racks to control the parallelism of both rolls, and means to lift the top pressure roll independently of the winding roll.

17. In a winding machine, a winding roll displaceable by accumulation of material thereon, a top pressure roll displaceable with the winding roll and independently thereof, reciprocatory double-faced racks displaceable with one of said rolls, rotatable members, following the movement of displacement of the other of said rolls and located at opposite ends of said rolls, to engage one face of the racks, rotatable members, mounted independently of the rolls and located at opposite ends of the rolls, to engage the other face of the racks, and means to lift the top pressure roll independently of the winding roll.

18. In a winding machine, a winding roll displaceable by accumulation of material thereon, a top pressure roll displaceable with the winding roll and independently thereof, reciprocatory double-faced racks displaceable with the winding roll, rotatable members displaceable with the top pressure roll and located at opposite ends of said roll to engage one face of the racks, rotatable members mounted independently of the rolls and located at opposite ends of said rolls to engage the other face of the racks, and means to lift the top pressure roll independently of the winding roll.

Signed at the borough of Brooklyn, in the county of Kings, city and State of New York, this 15th day of April, 1927.

JAMES A. CAMERON.