

actuating the shaft which carries the pulley belted to the driven machine, the frictional wheel or disc having an integral part on which the drum revolves as a journal, the dogs for clutching said disc, and a winding lever provided with a clutch mechanism for operating a shaft which is connected to said frictional wheel, so that the spring may be readily wound by the vibrations of the said lever.

11th. In a spring motor, a frame for the mechanical parts consisting essentially of the uprights B, B, connected by transverse pieces, the uprights C, C, likewise connected by transverse pieces, the bottom bar C<sup>3</sup>, having an integral transverse bar C<sup>4</sup> connected to the uprights C, C, and having an end e adjustably connected to the bottom connection between the uprights B, B, the lower skeleton frame E connected to the bottom parts, and the skeleton upright D adjustably connected at its lower end to one end of the bottom part C<sup>3</sup>, all substantially as described.

12th. In a spring motor, the combination of the drum having a frictional wheel connected thereto, the spring within the drum, the winding frictional wheel having an integral part on which the drum revolves, together with the clutching dogs, the shaft upon said drum carrying a large friction wheel, the multiplying gearing connecting the frictional wheel on the drum with the shaft above, and the horizontal shaft carrying a bevel pinion engaging the bevel wheel and likewise a pulley belted to the driven machine, together with a suitable supporting frame for the several mechanical parts, substantially as described.

13th. In a spring motor, the combination of the drum having a frictional wheel connected thereto, the spring within the drum, the winding frictional wheel with its integral tube on which the drum revolves, the short shaft above the drum, the train of multiplying frictional gearing connecting the friction wheel on the drum with the said shaft, together with the large bevel wheel on the said shaft said bevel wheel being so arranged that it may be readily reversed to act in combination, either above or below with a bevel pinion on the horizontal shaft carrying a pulley belted to the driven machine.

14th. In a spring motor, the combination of a drum, a frictional wheel connected to said drum, a spring within the drum, the winding frictional wheel having an integral tube on which the drum revolves, a shaft parallel to said tube and carrying a friction pinion engaging the friction wheel on the drum and also carrying the large friction wheel, the short vertical shaft above the drum carrying the friction pinion engaging the aforesaid large friction wheel and also carrying a bevel friction wheel and a horizontal shaft having thereon the pulley belted to the driven machine and the beveled friction pinion engaged by the beveled friction wheel.

15th. In a spring motor, the combination of a drum having a frictional wheel connected thereto, a spring within the drum, a winding frictional wheel having an integral tube on which the drum revolves, a shaft above the drum carrying a bevel friction wheel and a small friction pinion, the latter being adjustable on the shaft and the shaft itself being reversible, a parallel shaft carrying an adjustable friction pinion engaging the friction wheel on the drum and also an adjustable friction wheel engaging the friction pinion on the short shaft, and the horizontal shaft carrying an adjustable bevel friction pinion together with a pulley.

16th. The combination of a drum having a grooved friction wheel, a winding frictional wheel having an integral tube on which the drum revolves, the short shaft above the drum carrying an adjustable friction pinion and a large bevel wheel, a parallel shaft having a screw threaded part and carrying thereon an adjustable friction pinion, together with a nut, a large peripherally grooved friction wheel likewise adjustable on said shaft and a horizontal shaft carrying a peripherally grooved pulley and having one end screw threaded whereon is carried a bevel friction wheel adjustable between the nuts with its bevel surface in contact with the aforesaid friction wheel.

17th. The combination of the drum having a connected friction wheel, a spring within the drum, a winding friction wheel or disc having an integral tube on which the drum revolves, a multiplying train of friction back gearing, the horizontal shaft carrying the pulley belted to the driven machine and actuated by said back gearing together with the frame supporting said mechanical parts and adjustable at different points, as described.

18th. The combination of the drum F, containing spring G, and having friction wheel I, the winding disc H<sup>1</sup>, having the integral part H, on which the drum revolves, the vertical shaft J, having the screw plug bearing b<sup>1</sup>, at its upper end the short shaft L, above the drum, and having the screw plug bearing l<sup>1</sup>, at its upper end, and the train of multiplying friction gearing carried by said shaft, substantially as described.

19th. The combination of a drum, having a friction wheel, a spring within the drum, a winding friction wheel or disc, having an integral tube on which the drum revolves, the shaft above the drum carrying friction gearing, the parallel shaft carrying friction gearing and the horizontal shaft carrying friction gearing, all arranged substantially as described, so that the spring may actuate the train of friction gearing for the purpose of driving a machine belted to the pulley on the horizontal shaft.

20th. The combination of the drum F, having frictional wheel I, the spring G, within the drum, the winding frictional wheel H<sup>1</sup>, having an integral part H, on which the drum revolves, the shaft J, carrying friction pinion b, engaging wheel I, and also carrying friction wheel K, the shaft L, carrying friction pinion d, engaging wheel K, and also beveled friction wheel M, and the horizontal shaft f, carrying bevel friction pinion N, and pulley k, substantially as described.

21st. In a spring motor, the combination with the spring driven train of friction gearing, which includes a drum having a connected

frictional gear wheel and containing the drive spring, of a frictional winding wheel or disc having an integral part thereof serving as a journal for the drum, a sleeve surrounding said journal within the drum and keyed thereto, one end of the spring being attached to said sleeve and the other to the drum, and the horizontal shaft carrying a pulley which is belted to the driven machine, which shaft is actuated by the aforesaid train of gearing.

22nd. In a spring motor, the combination of the drum having a frictional gear wheel connected thereto, the spring within the drum, the frictional winding disc or wheel, having an integral tube on which the drum revolves, the sleeve or thimble surrounding said tube within the drum and connected to the tube, to which sleeve one end of the spring is attached, the shaft above said drum carrying the bevel friction wheel, the horizontal shaft having a bevel pinion actuated by said wheel, and the multiplying gearing connecting the frictional wheel of the drum with the short shaft for the purpose of actuating the latter.

23rd. The combination in a spring motor, of the drum having a frictional gear wheel connected thereto, the spring within the drum, the frictional winding disc having an integral tube on which the drum revolves, the horizontal shaft carrying a pulley belted to the driven machine, a sleeve on the tube within the drum, to which sleeve one end of the spring is attached, the short shaft carrying its friction gear, and the parallel shaft carrying a friction pinion that engages the friction wheel on the drum and a friction gear wheel that engages a friction pinion on the short shaft.

24th. The combination of the drum and its connected friction gear wheel, the spring within the drum, the frictional winding disc having an integral part on which the drum revolves as a journal, a sleeve surrounding said journal, to which sleeve one end of the spring is connected, the horizontal drive shaft, the frictional gearing connecting the friction wheel on the drum with the said horizontal shaft, and the dogs for clutching the frictional winding disc, the winding lever provided with clutch mechanism, and the shaft geared to the frictional winding disc, all designed to operate in combination, substantially as described.

25th. The combination of the drum, the frictional gear wheel connected thereto, the spring within the drum, the frictional winding disc having an integral tube on which the drum revolves, the horizontal shaft carrying a pulley belted to the driven machine, the train of multiplying friction gears connecting the friction wheel on the drum with the said pulley shaft, the dogs acting to engage the frictional winding disc, the beveled gear loosely connected to said disc, the horizontal shaft having a bevel gear engaging the aforesaid gear, the winding lever provided with the disc Q<sup>1</sup>, which is provided with the opening to receive the end of the aforesaid shaft and a dog Q<sup>2</sup>, operating in connection with the periphery of said disc, all substantially as described.

26th. In a spring motor, the combination with the pulley belted to the driven machine, of a brake lever having a shoe applied to the periphery of said pulley, a spring acting to press said shoe against said periphery, a right angled lever having one arm operating against the end of the brake lever to remove the shoe from the pulley, a connection between the end of the other arm with a lever fulcrumed on the machine frame, and a second lever carrying a plate or pad and having its other end operated in connection with the lever just mentioned, substantially as described.

27th. The combination with the pulley k, of the spring actuated brake lever S, having a shoe S<sup>1</sup>, the right angled lever T, having one arm acting upon the end of the lever S, and the levers U and V, said lever V being connected by the connection r<sup>1</sup>, with the right angled lever T.

28th. The combination with the pulley k, of the brake lever S, fulcrumed at s<sup>2</sup>, having shoe S<sup>1</sup>, and provided with spring s<sup>1</sup>, the right angled lever T fulcrumed at t, the lever V fulcrumed at v, and connected by a connection r<sup>1</sup>, with the end of the right angled lever T, and the lever U, fulcrumed at u, and having a knee or foot pad u<sup>1</sup>, all substantially as described.

#### No. 41,161. Paper Rack for Telephones.

(*Porte papier pour téléphones.*)

John F. Bullock, St. John, New Brunswick, Canada, 10th December, 1892 : 6 years.

*Claim.*—1st. In combination with a telephone, a paper rack, consisting of side rods A, having heads and threaded, as described, the clamps B, having the brackets D, and arms K and I, the clamps B<sup>1</sup>, having the lugs x, and the notched openings p, the cutter C, attached to the clamps B, by lugs, as described, and having the pin o, the hanger F, the roller E, and the nuts H, substantially as and for the purposes described.

2nd. In combination with a telephone desk, a rack consisting of side rods A, clamps B, having brackets D, and arms K and I, clamps B<sup>1</sup>, having lug x, cutter C, hanger F, roller E, and nuts H, substantially as described.

3rd. In combination with a bracket shelf, a rack consisting of side rods A, clamps B, having brackets D and arms K and I, clamps B<sup>1</sup>, having lugs x, cutter C, hanger F, roller E, and nuts H, substantially as and for the purposes described.

4th. In a rack, for holding paper, to be used in connection with a telephone, the rods A, in combination with the clamps B and B<sup>1</sup>, the cutter C, the hanger F, the roller E, and the nuts H, substantially as and for the purposes described.

5th. In a telephone paper rack, the cutter C, having the pin o, substantially as and for the purposes described.

6th. In a telephone paper rack, the arms I, substantially as and for the purposes described.

7th. In a telephone paper rack, the pin o, in combination with a cutter of any form, substantially as and for the purposes described.

8th. In a cutter for a paper rack, the pin o,