

(No Model.)

N. H. GROSSELIN.
GIG MILL.

No. 493,549.

Patented Mar. 14, 1893.

Fig. 1.

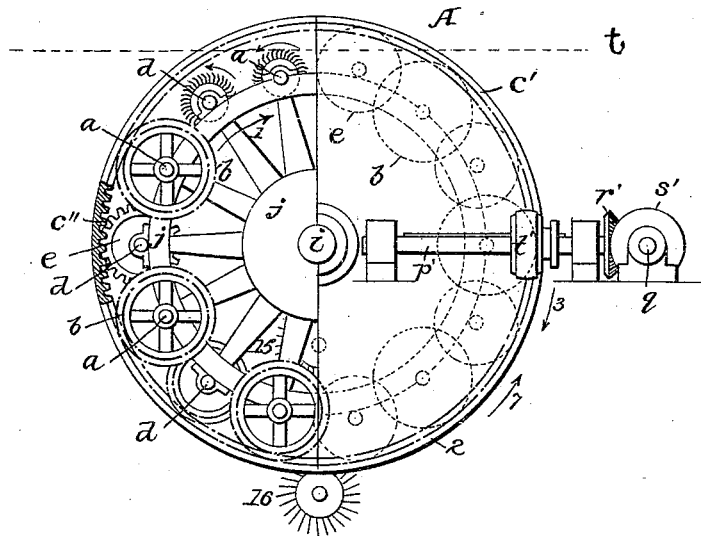
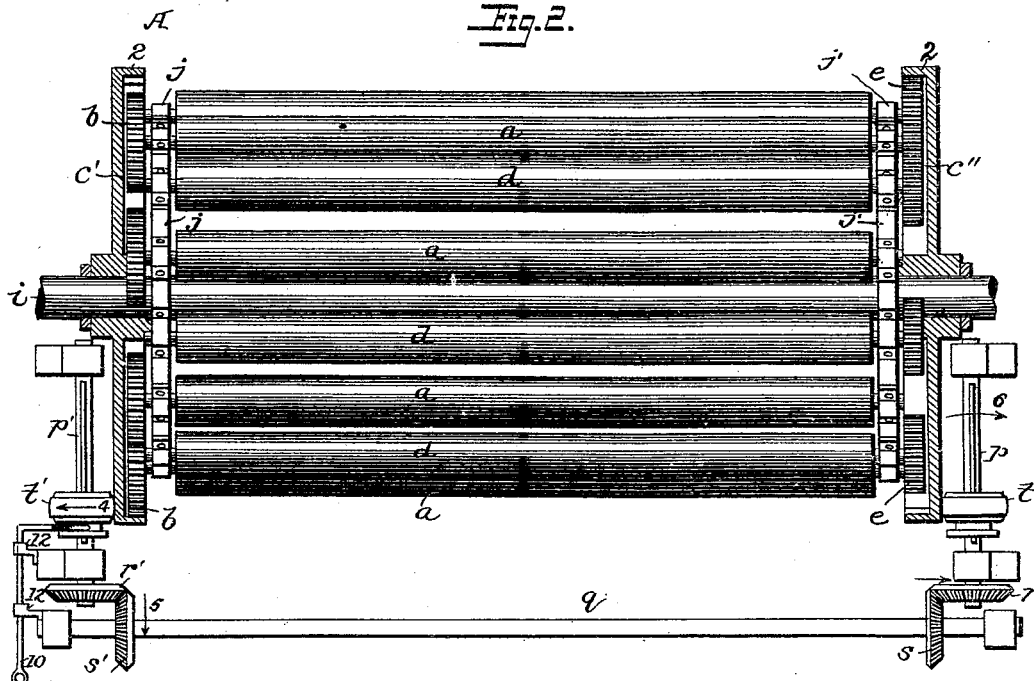


Fig. 2.



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UNITED STATES PATENT OFFICE.

NICOLAS HENRY GROSSELIN, OF SEDAN, FRANCE.

GIG-MILL.

SPECIFICATION forming part of Letters Patent No. 493,549, dated March 14, 1893.

Application filed November 3, 1892. Serial No. 450,917. (No model.) Patented in France May 30, 1890, No. 206,004, and in Germany June 11, 1890. No. 65,078.

To all whom it may concern:

Be it known that I, NICOLAS HENRY GROSSELIN, a citizen of the French Republic, residing at Sedan, France, have invented certain new and useful Improvements in Gig-Mills, of which the following is a specification.

My invention patented in France, May 30, 1890, No. 206,004, and in Germany, June 11, 1890, No. 65,078, relates to that class of gig mills in which there is a revolving head carrying two sets of napping rolls with the teeth set in opposite directions, so that one will work with and the other against the cloth, both being in operation under the revolution of the single drum which carries them; and the object of my invention is to secure the proper rotation of the two sets of rollers, to which end I make use of the connections and appliances illustrated in the accompanying drawings in which:

Figure 1. is an end view on different planes, part in section, of a drum or head carrying the napping rolls and the connections. Fig. 2. is a part sectional plan view of the parts shown in Fig. 1.

I have not shown in the drawings those parts of the napping machine not directly connected with my invention, which are known to those skilled in the art, such as the frames and the guide rolls for the cloth, and the means for feeding the cloth, &c., as any one familiar with the art will understand the method of employing these usual appliances in connection with those which I will now describe.

The drum, A, may be of any suitable construction; as shown, there is a shaft, *i*, and two disks or heads, *j, j'*, which have the bearings for the shafts or journals of the two sets of rolls, *a, d*, and the journals or shafts of the rolls extend through the disks, *j, j'*, carrying gears that revolve in contact with the inner faces of the flanges, 2, 2, of two gear wheels or disks, *c', c''*, which turn freely upon the shaft, *i*, independently thereof. As shown, the gears are in the form of toothed wheels, although friction gears may be employed. The wheels, *b*, gear with the gear wheel, *c'*, while the gears, *e*, gear with the wheel, *c''*.

In order to effect a simultaneous teasing or

dressings of the cloth both in the direction of the nap and also against the nap with one drum turning in one direction, I cover the rolls, *a, d*, with wire cloth, having the teeth set in different directions, so that the teeth of the rolls, *a*, will be set forward, that is in the direction of the drums' rotation and those of the rolls, *d*, will be set backward, that is in the opposite direction. In order to produce a useful effect, it is necessary that the speed of rotation of the rollers which act with the nap should be less than that of the rollers which act against the nap and it is very desirable that this relative speed of rotation should be varied from time to time as desired, to which end, I make use of suitable intermediate connections whereby the movement of one set of rolls is imparted to the other which may be driven positively or as hereinafter described by means of the cloth. Thus, as the rolls, *a*, which act with the nap have their teeth so set as to engage with the cloth *t*, dotted lines Fig. 1, as said rolls travel over the cloth motion will be imparted thereto by the engagement of the traveling rolls with the comparatively stationary cloth and motion is imparted through the medium of the gears, *b*, to the wheel, *c'*, and from the latter through suitable means to the wheel, *c''*, which in turn imparts motion to the gears, *e*, and rolls, *d*.

Any suitable intermediate connection may be employed whereby the movement of one of the gears or disks is imparted to the other. Thus, I mount in suitable bearings adjacent to the wheel, *c''*, a shaft, *p*, carrying a friction wheel, *t*, which is in frictional contact with the outer face of the wheel, *c''*, and a bevel gear, *r*, upon the end of this shaft gears with a bevel gear, *s*, upon a shaft, 9, extending parallel with the drum, A. There is another shaft, *p'*, mounted in bearings adjacent to the wheel, *c'*, and provided with a frictional wheel, *t'*, which bears against the outer face of the wheel, *c'*, and this shaft, *t'*, is geared with the shaft, 9, through the medium of bevel gears, *r', s'*, as shown.

It will be evident that as the head, A, revolves (say in direction of arrow 3 Fig. 1) and motion is imparted to the rolls, *a*, the revolution of the latter will carry with the same the gears, *b*, which in turn will turn the gear or

- wheel, c' , in one direction as, for instance, in the direction of the arrow, 7, Fig. 1. The revolution of the wheel, c' , will turn the friction wheel, t' , and its shaft in the direction of the arrow, 4, and the arrows 5 and 6 will indicate the direction in which motion is imparted to the shafts, 9 and 6, thereby turning the wheel or disk, c' , in the direction of the arrow, 7, Fig. 1.
- 10 It will be evident that by shifting the position of the wheel or wheels, t, t' , so as to carry the same nearer to or farther from the centers of the disks, the speed of rotation may be varied, that is, if both wheels are shifted to the same extent inward a slower motion will be imparted to the wheel, t' , and a slower motion will be imparted from the wheel t . If, however, only the wheel, t' , is shifted inward, a quicker motion will be imparted to the wheel, t' , and to the wheel, t , but as the latter acts upon the disk, c'' , nearer the periphery than the wheel, t' , is acted upon by the disk c' , the revolution imparted to the disk, c'' , will be slower than that of the disk, c' , and consequently the rolls, d , will have a slower motion than the rolls, a .
- 20 By varying the position of the wheels t, t' , the relative speed of rotation of the rolls a, d , may be varied to any desired extent.
- 30 Any suitable means may be employed for shifting the positions of the friction wheels t, t' ; as shown, there may be a forked rod 10, the end of which engages the neck of the friction wheel and which slides in bearings 12, 12', and which can be moved by hand to set the wheel in any desired position.

I do not here claim the use of two sets of napping rolls carried by a drum and having their teeth set in opposite directions, one driven by adhesion to the cloth and driving

the others as set forth in my application for Letters Patent Serial No. 377,190.

Without limiting myself to the precise construction and arrangement of parts shown, I claim:

1. In a napping machine the combination of a drum and two series of napping rolls carried thereby with their teeth set in opposite directions, and connections whereby one set of rolls is driven from the other and adjustable means for varying the speed of motion thus imparted, substantially as described. 45 50

2. The combination of the drum, two sets of napping rolls having reverse teeth, gears upon the shaft of the rolls, two independent gear wheels, and adjustable driving connections between said wheels whereby to vary the speed of motion imparted from one to the other, substantially as described. 55

3. The combination of the drum, two sets of napping rolls carried thereby, two gear wheels or disks and gears gearing each set of rolls to one of the disks and an adjustable friction gear engaging each disk, and shaft and gear connections between the two friction gears, substantially as described. 60 65

4. The combination of the drum, carrying rolls and gears, and two adjacent disks, c', c'' , of a transverse shaft and two side shafts geared together, and an adjustable friction gear on each side shaft bearing on the adjacent disk, substantially as described. 70

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

NICOLAS HENRY GROSSELIN.

Witnesses:

LÉON LAMSTED,
ARTHUR PRUÉT.