2 Sheets--Sheet 1.

A. BROWN.

Cloth Napping-Machines.

No. 153,660. Patented Aug. 4, 1874.

Fig. 1.

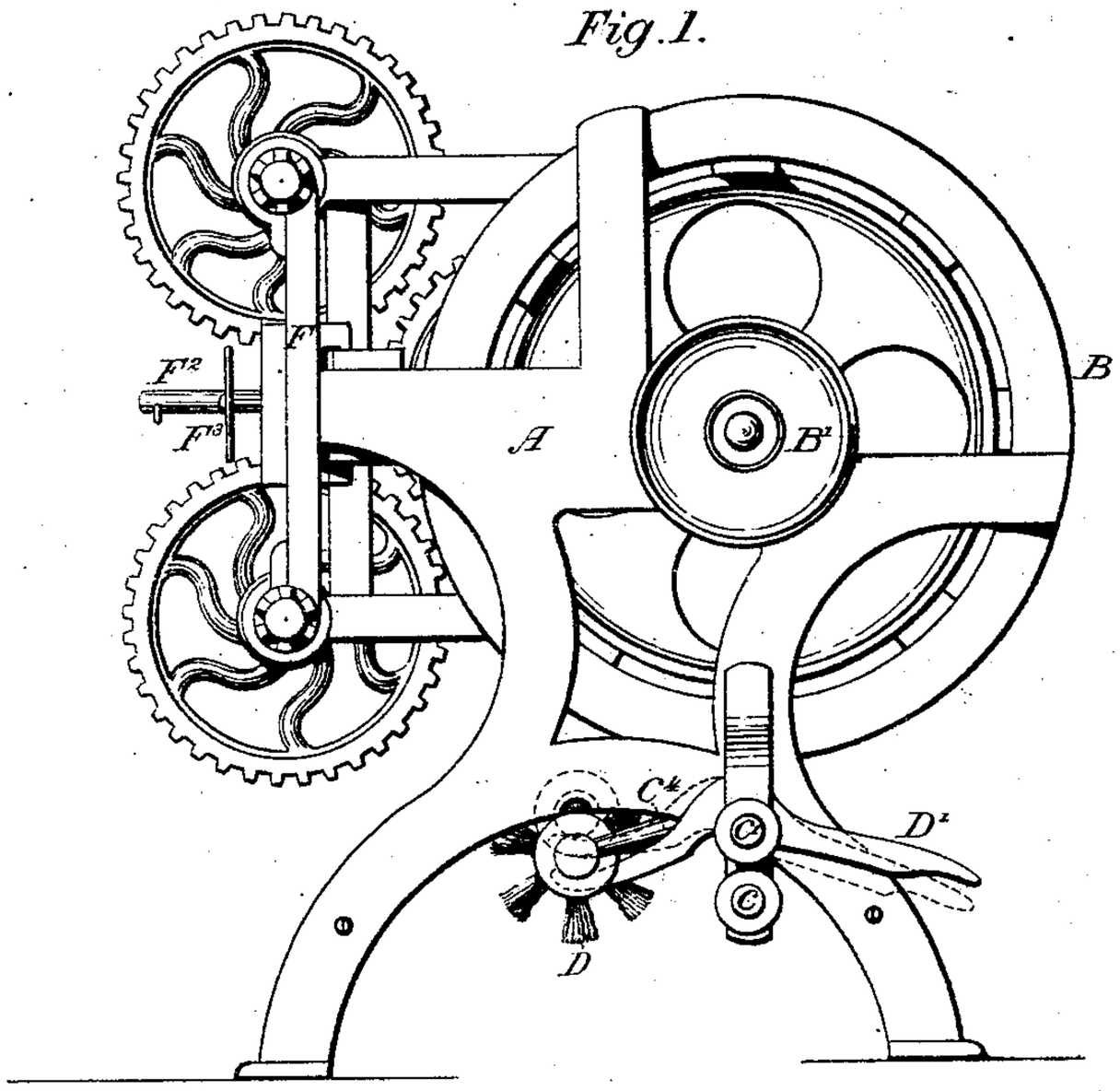
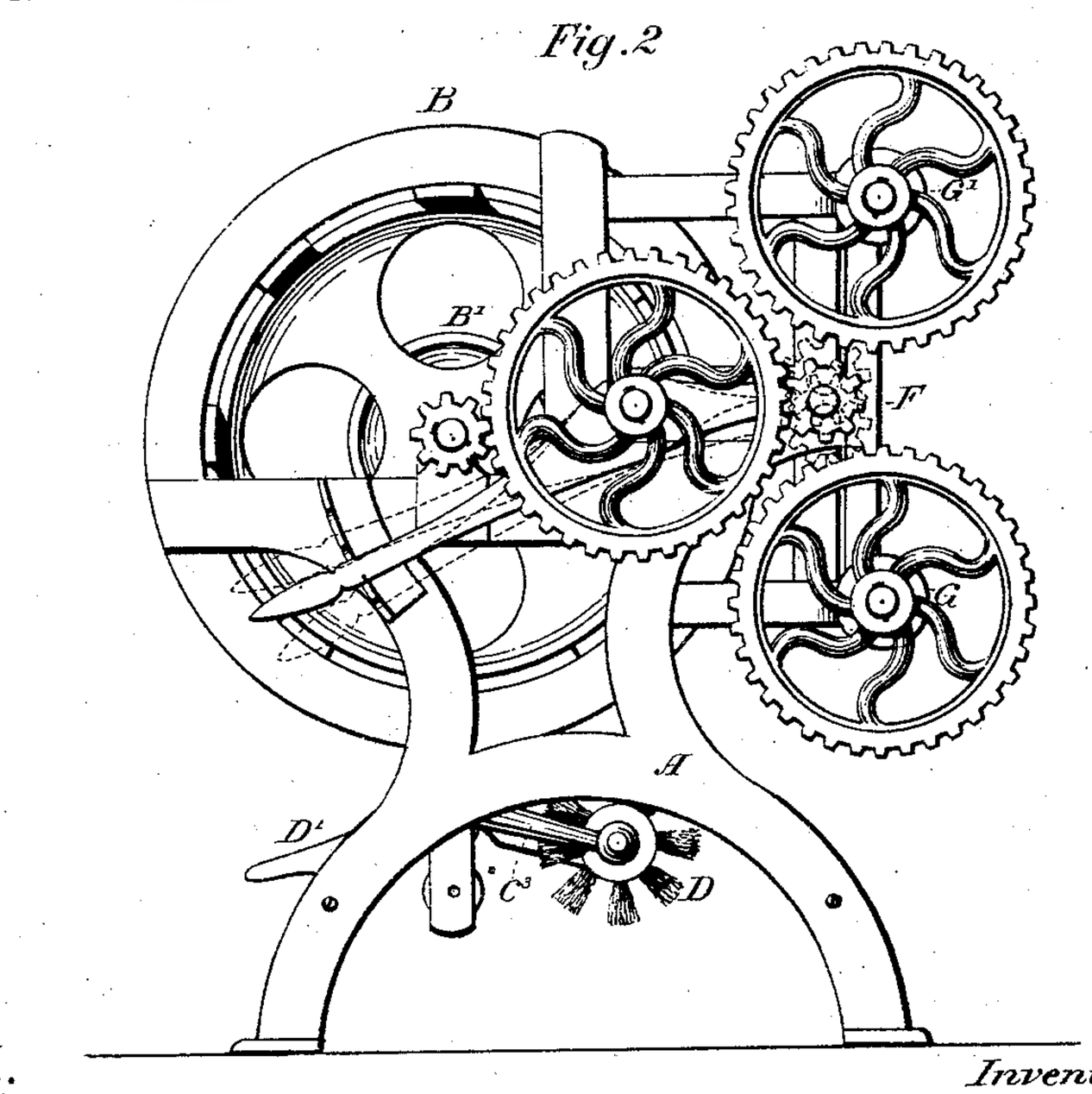


Fig. 2



Attest:

C. M. Connell
Saml H. Gregory

Inventor:

Adna Brown
By his Attorneys
Blanchard & Robinson

2 Sheets--Sheet 2.

A. BROWN.

Cloth Napping-Machines.

No. 153,660. Patented Aug. 4, 1874.

Fig. 3.

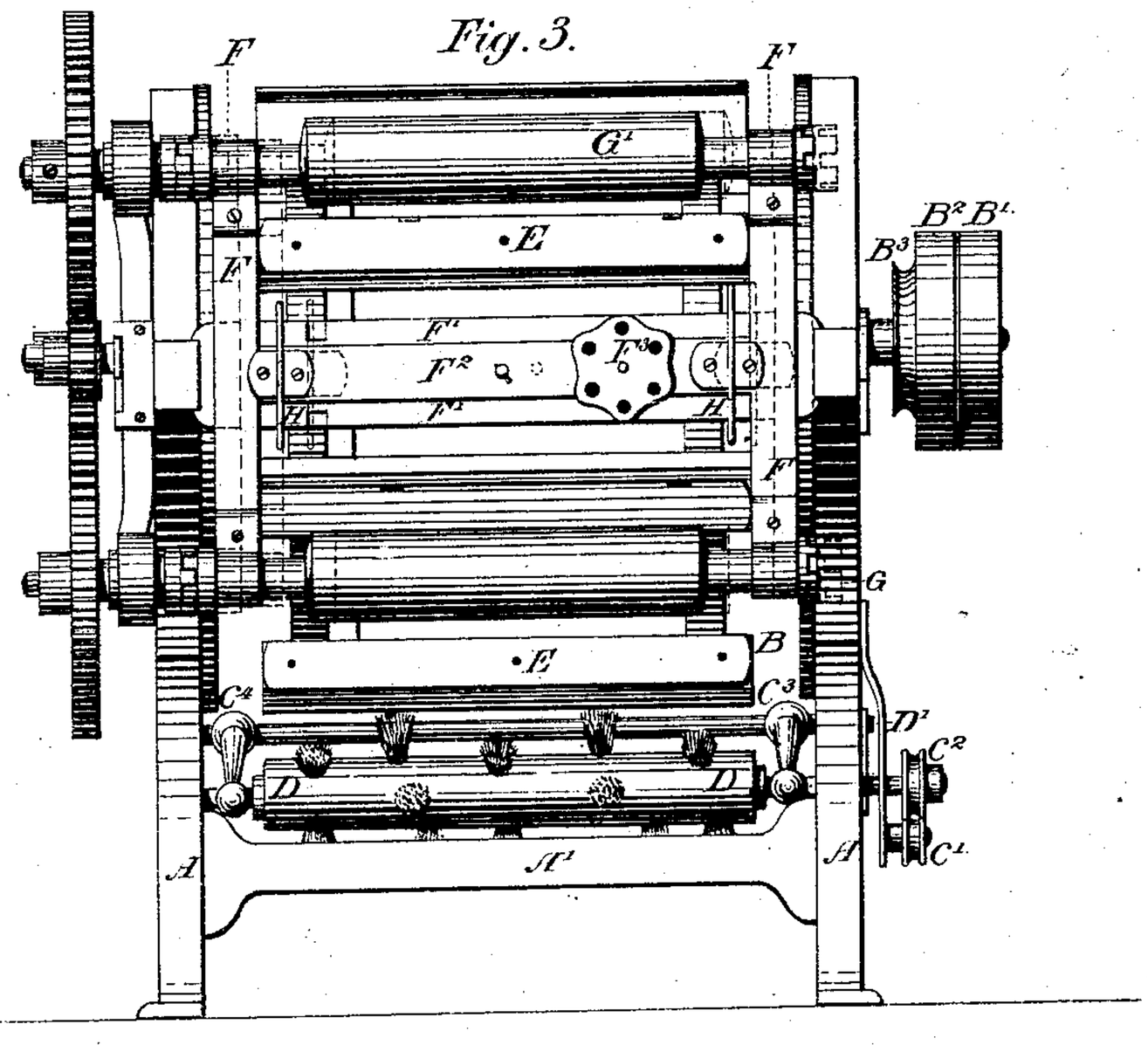
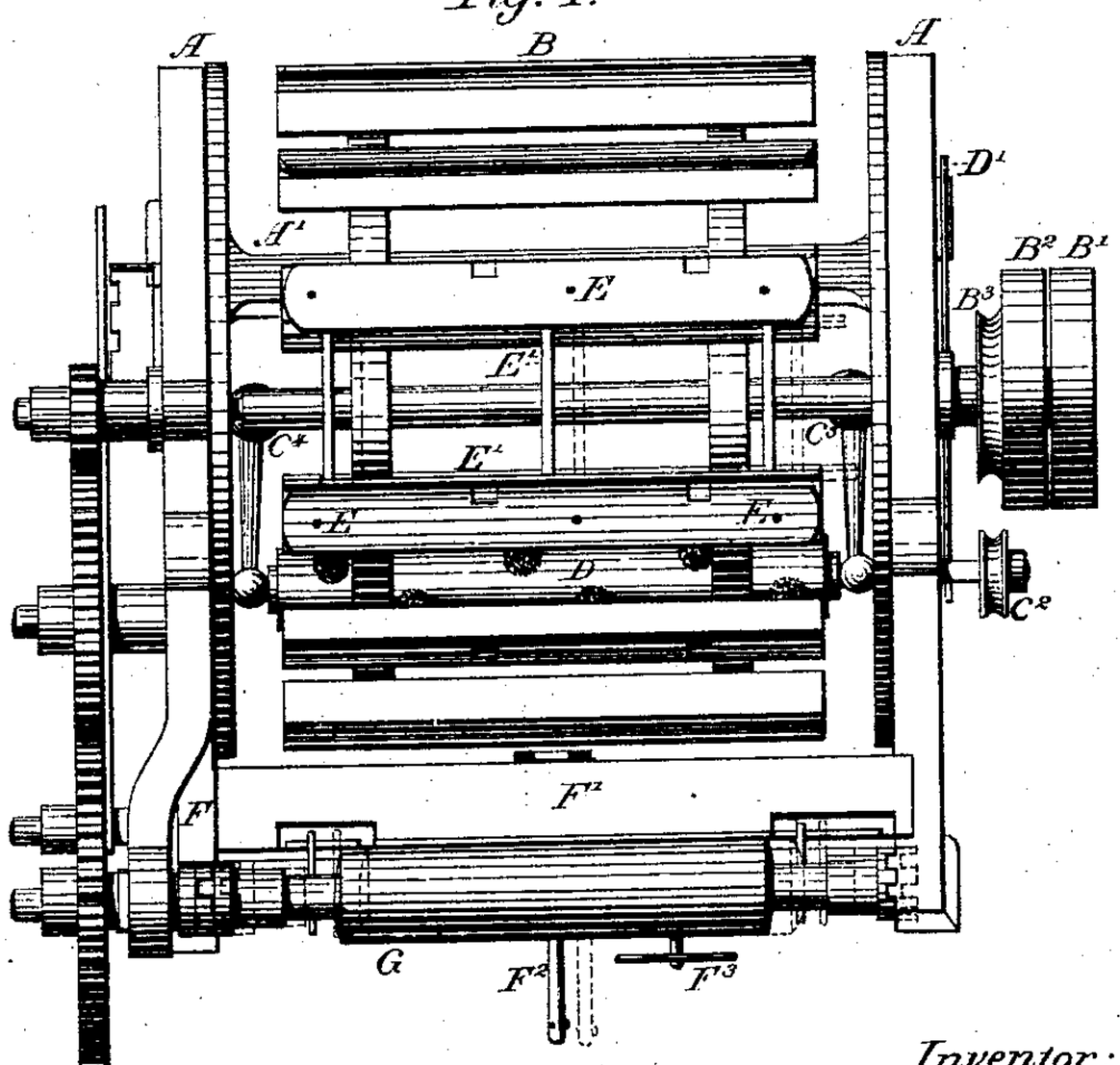


Fig. 4.



Attest:
C. M. Cornell
Saml. E. Gregory

Inventor:
Adna Brown
By his Attorneys
Blanchard & Robinson

UNITED STATES PATENT OFFICE.

ADNA BROWN, OF SPRINGFIELD, VERMONT.

IMPROVEMENT IN CLOTH-NAPPING MACHINES.

Specification forming part of Letters Patent No. **153,660**, dated August 4, 1874; application filed May 29, 1874.

To all whom it may concern:

Be it known that I, ADNA BROWN, of Springfield, in the county of Windsor and State of Vermont, have invented certain new and useful Improvements in Gigs for Raising Nap upon Cloth; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 is an end view of my improved gig, showing the skeleton cylinder to which the flats which carry the teasels are attached, the frame which supports one end of said cylinder, the frame which carries the cloth-beams, the clutches for connecting them to the driving-gearing, the driving-pulley, and the revolving brush for cleaning the teasels, with the pulleys for driving the same, and the lever for placing the brush in position and motion. Fig. 2 is a view of the opposite end of the machine, showing the frame-work, the revolving cylinder, the gearing and lever for reversing the movements of the cloth-beams and the revolving brush. Fig. 3 is an elevation of the rear side of the machine, showing the position of some of the parts above enumerated, together with the shaft and arms which carry the revolving brush, the laterally moving and reversible frame which carries the cloth-beams, and the hand-wheel for operating the same; and Fig. 4 is a plan view, showing the skeleton cylinder, the frame-work, the driving pulleys, the upper cloth-beam, the frame which carries it, the stud upon which said frame rotates, the method of connecting the beams to the driving-gearing, the hand-wheel for giving lateral movement to the frame, and the flat which carries the teasels, and the method of attaching it to the cylinder.

Corresponding letters denote like parts in all of the figures.

This invention relates to that class of machines which are denominated gigs, and which are used for raising a nap upon cloths during the process of finishing such goods while in the web; and it consists in certain improvements in such machines, as will be more fully set forth hereinafter.

In constructing machines of this character, I use a frame, A A′, of iron, or any other suitable material, it being constructed substantially as shown, or so as to receive and support the other parts of the device. Between the vertical portions A A of this frame there is placed a revolving skeleton cylinder, B, the journals of its shaft resting in boxes, or other bearings attached thereto in such a manner that it may rotate freely, it being driven by a pulley, B′, upon the outer end of its shaft, or by gearing placed thereon. Upon the same shaft on which the driving-pulley is placed, and by the side thereof, there is placed another one, which is made to revolve freely on said shaft, it being designated by the letter and numeral B^2. Upon the inner surface of the last-named pulley there is a projection, B^3, which is for the purpose of receiving a belt or cord, which passes from it to and under idlers or loose pulleys C C, and from there to and around a pulley, C^2, placed upon the shaft of a revolving brush, which, by referring to the drawing, will be seen as placed below the cylinder B, where it is located for convenience, but which may be placed in any other location where it can be readily revolved. This brush consists of a cylinder of the required size, its periphery being furnished with projecting wires, stiff bristles, or any other material which will enable it, as it is rotated, to clean the teasels as they are successively brought in contact with it. The method of arranging this brush, with reference to the cylinder which carries the teasels, is to extend from one of the end frames A to the other a rod of metal, upon which there are placed two arms, c^3 and c^4, which are firmly secured to the said rod, it having its bearings in the frames A A. Through the outer ends of the arms c^3 and c^4 the shaft of the revolving brush D passes, and carries upon its outer end the pulley c^2, which is thus brought in line, or nearly so, with the pulley B^3 on the main shaft of the machine.

This arrangement of the revolving brush and its arms, with reference to its pivotal points, provides for its being brought into contact with the teasels while they are in their

proper position upon the cylinder B, and also for removing it from such contact when the machine is in use, such change of position being effected by means of a lever, D′, which is pivoted to the frame A in such a position as to cause its inner end to bear upon the under side of the shaft which carries brush D, so that when its outer end is borne down by the operator the brush will be raised to such a position as to cause it to come in contact with the teasels, as above described; but, when not required for that purpose, by raising the outer end of the lever the gravity of the brush, its arms, and shaft will cause it to fall out of the way of said teasels. The cloth, as it passes from one of the beams to the other and around the revolving cylinder, is made to pass under a roller placed below the brush, and is thus kept from contact with it.

The office of the brush D being to clean the flock from the teasels without removing them from the cylinder on which they are used, and to do it in the shortest possible space of time, the above-recited arrangement of parts is regarded of importance, as it enables the operator to accomplish such a result in a few moments by simply allowing the belt to pass around the tight pulley until the large cylinder is in full motion, and then throwing it onto the loose pulley, and placing his foot upon the lever and raising the brush into contact with the teasels, which action will also tighten the belt which drives said brush, so as to put it in motion. The cleaning will generally have been done before the motion of the cylinder ceases; but, in case it is not, it is only necessary to turn the cylinder by hand until the parts to be cleaned are brought in contact with the brush.

In order that adequate provision may be made for the yielding of the teasels in the flats, so that an even outer surface may at all times be presented to the cloth, I use a cylinder, B, having lugs upon it, the spaces between which are left open, so that when the flats are placed thereon, if they are filled with teasels of different sizes, the larger ones can be pressed inward by the cloth, and thus an even outer surface be formed upon them, which acts upon the entire surface of the cloth, and prevents raising more nap in one place than in another. As the flats which hold the teasels are usually made of thin light iron, it follows that they are easily bent, and hence it becomes necessary that some provision should be made for keeping them as straight as possible while they are in use upon the cylinder. This I accomplish by securing to the outer surface of the lugs of the cylinder upon which the flats rest plates of metal E E, which are so arranged that one of them shall bear upon the outer surface of one bar of the flat E′, and press it down upon the surface of the lug upon which it rests, while the other plate bears against the edge of the opposite bar thereof, and so keeps it from being bent in that direction. In order that these flats may be readily inserted and removed, the plates E are provided with notches in their edges, so that, by moving the flats a short distance longitudinally from the position which they occupy when in use, the projecting ends of the rods which hold the bars thereof together may be passed through said notches, and thus the flat be removed or inserted. For holding the flats in position a button is placed upon one end of the lugs, which is capable of being turned into such a position as to allow the same to move longitudinally, and into another to prevent such movement and confine it in position for use.

In teaseling cloth for the purpose of raising a nap thereon it frequently becomes desirable to reverse such nap for the purpose of making it more even; and, in order that this may be done without reversing the movement of the cylinder which carries the teasels, and without unwinding the cloth from the beams and reversing its position thereon, a frame, F, is pivoted to a cross-beam, F′, of the main frame in such a manner that, by giving it a transverse movement, the clutches which connect its cloth-beams to the driving-gearing will be thrown out of gear, and thus allow the frame F to be rotated and thereby reversed.

The frame F consists of a central longitudinal bar, through which the stud F^2, upon which it turns, passes; and two vertical end pieces, the outer ends of each of which are provided with boxes for the journals of the cloth-beams to rotate in. Through the longitudinal beam there passes a shaft, the outer end of which is provide with a hand-wheel, F^3, its inner end being furnished with a pinion which meshes into teeth formed upon a plate of metal which is secured to the bar F^1 of the main frame. In the boxes formed upon the ends of the vertical portions of the frame F the shafts of the cloth-beams G G^1 rest and rotate, each of their outer ends being supplied with a clutch, which, when the beams are to be rotated upon their axes, are to be caused to mesh into similar clutches formed or placed upon the end of the shafts which carry the gears which rotate the beams, as shown in Figs. 3 and 4. The revolving frame F is held in position when cloth is being wound upon its beams by the stud F^2, it moving transversely in a slot formed in the beam F^1, to which it is attached. When the parts are in position for use the cloth-beams are coupled to the shafts of the driving-gears, the frame F at such time being pushed inward upon its stud, so as to allow the clamps H H upon its longitudinal bar to engage the edges of the plate of metal upon beam F^1 of the main frame. If, now, a web of cloth be put upon one of the beams and its outer end passed around the teaseling-cylinder and made fast to the other beam and the machine be put in motion, the cloth will be unwound from the beam upon which it was first placed, and wound upon the other. In its passage a nap will have been raised. If, at this or at any other stage of the process of raising the nap, it becomes desirable to reverse the movements of the cloth

and cause the nap to stand in a reverse direction upon the cloth, the operator applies his hand to the wheel F^3, and turns it in such a direction as to cause the clutches upon the ends of the cloth-beams to be disengaged from those upon the shafts of the driving-gear, in doing which the clamps will be brought opposite notches in the plate or carried past its end, so that the frame F, with its cloth-beams and web of cloth, may be drawn outward and revolved or turned upon its pivot, and again pushed inward when the pinion upon the hand-wheel shaft will enter another toothed slot in the plate upon beam F^1, and thus by turning said wheel the clutches upon the opposite ends of the beams will be made to engage with those upon the driving-shafts, and so by again passing the cloth around the teaseling-cylinder and fastening its ends to the empty beam and putting the machine in motion, the desired result will be accomplished.

The method of giving motion to the cloth-beams, which I prefer, is the one shown in the drawings, and consists of a pinion placed upon the driving-shaft, which meshes into a spur-wheel placed upon a stud, which is secured to the main frame of the machine, and which, in turn, meshes into a pinion attached to and revolving upon a stud on the end of a lever, the pivotal point of which is upon the stud upon which the spur-wheel just referred to turns. This last-named pinion meshes alternately into spur-wheels placed upon short shafts which pass through arms cast upon the end of the main frame, and upon the inner ends of which the clutch-couplings before referred to are placed, which rotate the cloth-beams. The lever referred to extends from its pivotal point outward to some convenient point for operation, near which it is allowed to engage with a plate of metal or some other device for holding it in position, it being so arranged that when in its central position its pinion will not engage with either of the spur-wheels, which drive the cloth-beams, and will rotate freely between them, but as its outer end is raised or lowered it will mesh with one or the other of the wheels, and thus enable the operator to cause the cloth to be wound from one beam to the other, as he may desire.

I am aware that a revolving frame for carrying the cloth-beams of a teaseling-machine is not a novel feature, and hence I do not claim such a device broadly; but

Having described my invention, what I do claim, and desire to secure by Letters Patent, is—

1. In a cloth-napping machine, a reversible cloth-roller frame, substantially as described, which can be moved laterally and rotated when required, as and for the purpose set forth.

2. In combination with a cloth-napping machine, a revolving brush, D, oscillating arms C^3 and C^4, and a lever, D^1, the parts being arranged to operate substantially as and for the purpose set forth.

3. In combination with the teasel-carrying flats, the metal plates E on the lugs of the cylinder, one bearing upon the side of one of the longitudinal bars of the flat and the other upon the edge of the other bar, as and for the purpose set forth.

In testimony that I claim the foregoing as my own invention, I have affixed my signature in presence of two witnesses.

ADNA BROWN.

Witnesses:
HENRY CLOSSON,
CHARLES A. FORBUSH.