

J. W. COSGROVE.
 APPLYING DEVICE.
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1,392,301.

Patented Oct. 4, 1921.

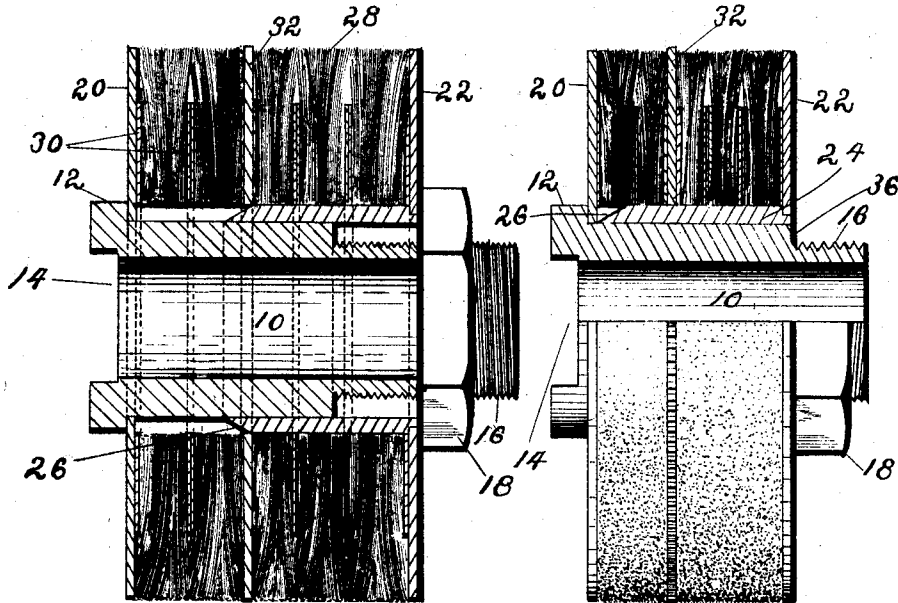


Fig. 1.

Fig. 2.

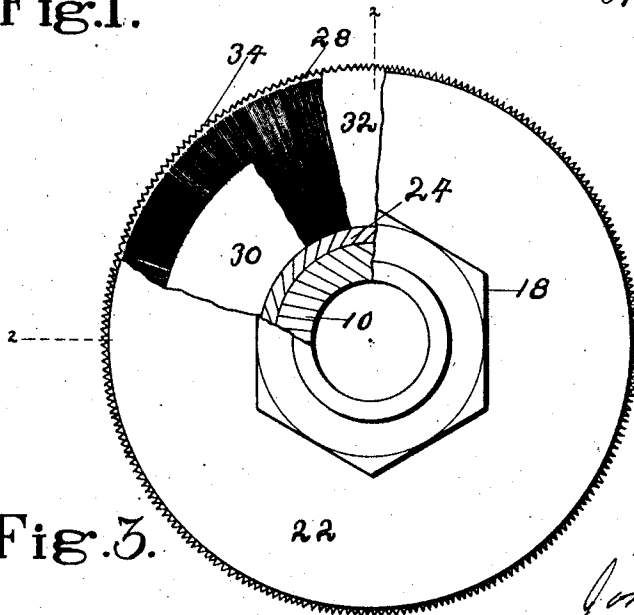


Fig. 3.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN W. COSGROVE, a citizen of the United States, residing at Medford, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Applying Devices, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to applying devices, as those used for distributing coating fluids. Such devices are employed, for example, upon cementing machines. In organizations of this character it is customary to use either flexible brushes or solid applying rolls formed of metal, in the periphery of the applying surfaces of which rolls are depressions or pockets to receive and present the fluid to the work. The dimensions of these pockets to accomplish the proper delivery of the fluid depend upon its viscosity—the thinner the fluid, the smaller being the pockets. With some substances, as extremely thin cements, it is a matter of considerable difficulty to produce in the rolls sufficiently minute and properly distributed depressions, and an object of the present invention is to provide such an applying device.

For this purpose, I construct the device of relatively fine filaments of flexible material, which may be in groups, these being compressed into a rigid body which is immovable by contact with the work. Between the ends of adjacent filaments spaces occur which are especially effective in holding and delivering freely flowing fluids. In the arrangement shown, there is a support upon which are mounted relatively movable abutments. Between the abutments the filaments extend to substantially the same distance outwardly from the support as the abutments. Associated with the abutments is means for moving one or both of them to compress the filaments to the desired rigidity, and, because of the similar length or extent of the filaments and abutments, this condition is assured at the outer extremities of the former so that the depressions are not disturbed by contact with the work. There is also preferably included in the device means for moving the filaments

in another direction than that in which the compressing force acts, that is, at an angle to the direction of movement of the abutments. By this expedient, the filaments are raised during compression, as by a member movable with an abutment and having an inclined end to engage the inner ends of the filaments adjacent to the support, until their outer extremities are in the correct relation. In the illustrated embodiment, the device is cylindrical, the support taking the form of a tube, the abutments being disks, and the means for moving the filaments outwardly being a sleeve surrounding the support.

In the accompanying drawing,

Figure 1 is a central longitudinal section through one of my improved devices during the assembling of its elements;

Fig. 2 is a side elevation thereof after completion, with a portion in section on the line 2—2 of Fig. 3; and

Fig. 3 is a side elevation with portions broken away and in section.

A tubular support or core 10 has at one end a shoulder or flange 12, across which is a slot 14 to receive a projection upon a driving shaft (not shown). At the opposite extremity of the core is a reduced threaded portion 16, upon which operates a nut 18. Surrounding the core and contacting with the shoulder 12 is an abutment furnished by a disk 20, while movable toward this disk is an opposite disk-abutment 22. The latter is preferably carried by the end of sleeve 24, fitting the core to slide thereon and having an inner inclined end 26 tapering outwardly toward the abutment 22.

In assembling the device, the sleeve and disk 22 are removed from the core, and about both core and sleeve are placed filaments 28 of vegetable fiber, bristle, wire or other naturally flexible material, these filaments extending in substantially radial directions. To temporarily hold the filaments in the desired relation while assembling, they may be arranged in groups in disk form prior to application to the core and sleeve by gluing or otherwise securing them between pairs of rings 30 of cardboard, fabric or the like. The inner diameter of these rings permits them to just slip over the sleeve 24, while at their peripheries they extend to points considerably within the

outer ends of the filaments, thereby permitting the latter to meet at the applying surface. Such a number of these groups is used that, with the size of filament employed, the proper rigidity will be given to the structure after compression. This may either be the total number which may be held upon both the core and sleeve or a portion of this. Between two of the groups of filaments and dividing the device into sections, preferably near its longitudinal center, may be inserted a feeding member consisting of a disk 32 of metal having about its edge work-engaging projections 34. With the groups of filaments in place upon the core and sleeve, the point 26 of the latter is started upon the former, at which time the nut 18 may be engaged with the thread 16. The nut is then turned to move the sleeve over the core, compressing the filaments between the two abutment-disks. As the sleeve travels, its inclined end raises group after group of filaments, and also the ring 30, until the outer ends of the filaments are substantially alined transversely with the outer edges of the disks. As to the disk 32, its projections lie somewhat outside the applying surface to engage the work more effectively. When the nut 18 reaches a shoulder 36 between the reduced portion and the main body of the core, the compression of the filaments is completed, as illustrated in Fig. 2 of the drawing. At this time, the ends of the fibers furnish an immovable surface when pressed against the work, while between them are small fluid-receiving pits or depressions. This surface may be finished, if desired, by rotating the device and subjecting it to the action of an abrasive.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. An applying device comprising relatively fine filaments of flexible material compressed into a rigid body at the applying surface.

2. An applying device comprising independent groups of relatively fine filaments of flexible material compressed into a body presenting a continuous rigid surface.

3. An applying device having a support, naturally flexible filaments extending from the support and providing an applying surface, and means arranged to press the filaments together into a body having a rigid applying surface.

4. A coating applying device having a support, naturally flexible filaments extending from the support and providing at their outer ends an applying surface, and means arranged to compress the filaments to a condition of rigidity in which the applying surface is immovable by contact with the

work, there being between the ends of the filaments minute depressions to receive the coating substance.

5. An applying device having a support, spaced abutments mounted on the support, filaments carried by the support between the abutments and having their ends in substantially the same surface as the outer edges of the abutments, and means arranged to move the abutments relatively toward one another to compress the filaments.

6. An applying device having a support, spaced abutments mounted on the support, independent circumferential groups of filaments extending outwardly about the support between the abutments, and means arranged to force the abutments toward one another, thereby forcing the groups of filaments together and compressing the filaments in the groups.

7. An applying device comprising relatively fine filaments of flexible material compressed into a rigid body, and means operable as a result of the compression of the filaments for moving said filaments in another direction than that in which the compressing force acts.

8. An applying device having a support, spaced abutments mounted on the support, filaments carried by the support between the abutments, means arranged to move the abutments relatively toward one another to compress the filaments, and means arranged to travel with an abutment to move the filaments during compression at an angle to the direction of movement of the abutments.

9. An applying device having a support, spaced abutments mounted on the support, independent groups of filaments carried by the support between the abutments, means arranged to force the abutments toward one another, thereby forcing the groups of filaments together and compressing the filaments in the groups, and means connected to an abutment to move the groups of filaments during compression at an angle to the direction of movement of the abutment.

10. An applying device having a support, spaced abutments mounted on the support, filaments carried by the support between the abutments, means arranged to move the abutments relatively toward one another to compress the filaments, and a member carried by an abutment and having an inclined end engaging the inner extremities of the filaments.

11. An applying device having a cylindrical support, filaments extending therefrom and furnishing at their outer ends a cylindrical applying surface, a disk carried by the support and fixed against movement from the filaments, a disk movable on the support toward the filaments, the peripheries of the disks being in substantial alinement

with the outer extremities of the filaments, and means arranged to move the disk on the support.

12. An applying device having a cylindrical support, filaments arranged in a series of disk-like groups about the support, abutments carried by the support at opposite ends of the series and being substantially equal in diameter to the groups of filaments, and means arranged to move the abutments relatively to one another to compress the groups of filaments.

13. An applying device having a cylindrical support, filaments extending therefrom and furnishing at their outer ends a cylindrical applying surface, a disk carried by the support and fixed against movement from the filaments, a disk movable on the support toward the filaments, the peripheries of the disks being in substantial alignment with the outer extremities of the filaments, means arranged to move the abutment on the support, and a feed disk dividing the filaments into sections and extending at its periphery beyond the ends of said filaments.

14. An applying device having a cylindrical support, filaments arranged in a series

of disk-like groups about the support, abutments carried by the support at opposite ends of the series and being substantially equal in diameter to the groups of filaments, means arranged to move the abutments relatively to one another to compress the groups of filaments, and a feed disk situated between groups of filaments and being of greater diameter than said groups.

15. An applying device having a central support, filaments extending therefrom and furnishing at their outer ends an applying surface, disks surrounding the support and relatively movable against the filaments, said disks being arranged to exert pressure upon the filaments to their outer extremities, and means arranged to effect the relative movement of the disks.

16. An applying device comprising relatively fine filaments of flexible material extending in a direction substantially radial to a central axis and being compressed into a rigid body at the applying surface.

In testimony whereof I have signed my name to this specification.

JOHN W. COSGROVE.