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R. KUNATH

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FILAMENT FEEDING APPARATUS

Filed July 28, 1930

Fig. 1

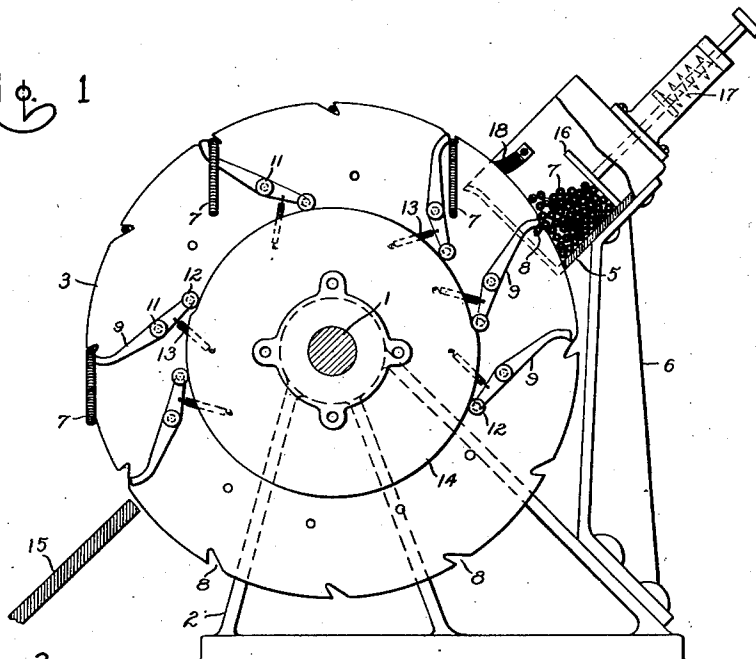


Fig. 2

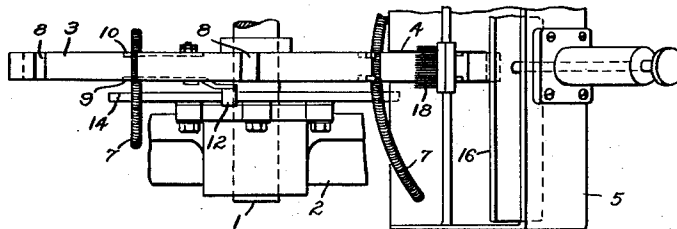


Fig. 3

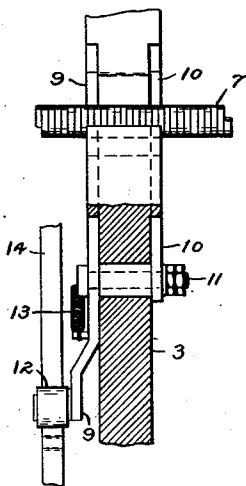
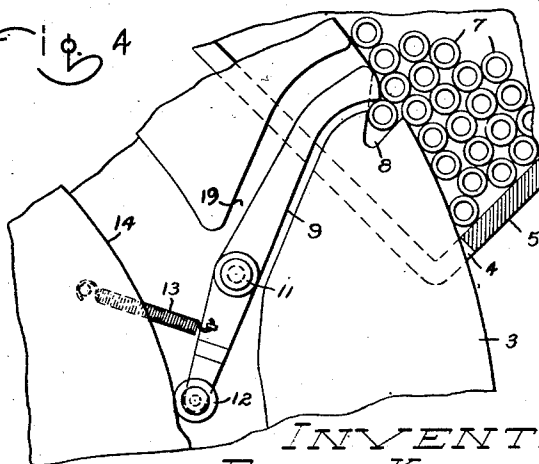


Fig. 4



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## UNITED STATES PATENT OFFICE

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## FILAMENT FEEDING APPARATUS

Application filed July 28, 1930, Serial No. 471,393, and in Germany August 17, 1929.

My invention relates to devices for feeding coiled filaments such as are used in electric incandescent lamps and similar articles to a filament mounting machine or other device. More particularly my invention comprises a receptacle for a plurality of such filaments and a conveyor in which the filaments are received and transported one by one to a suitable discharge point. The said conveyor is a rotating disc which extends through a slot in the receptacle and has on its periphery a series of pockets each adapted to receive a separate coiled filament as the rotation of the said disc brings that particular pocket into registry with the said slot. Each pocket is provided with one or more movable jaws and the arrangement is such that, as a pocket reaches loading position, each jaw is opened to allow the pocket to receive a coil and afterwards closed to retain said coil. Finally each jaw is opened as the pocket reaches discharge position. Additional features and advantages of my invention will appear from the description which follows of a species thereof and from the accompanying drawings.

In the drawings Fig. 1 is an elevation and Fig. 2 is a plan view of an embodiment of my invention; Figs. 3 and 4 are end and side elevations on an enlarged scale of a portion of the device.

Referring to the drawings, a shaft 1 supported by frame 2 so that it may be constantly rotated by a drive (not shown) has a narrow disc 3 fastened thereon, the periphery of which extends through a slot 4 in the center of the bottom of a trough 5 which has a width corresponding to the length of filament used. In this trough 5 which is fastened to a bracket 6 of the supporting frame 2, the coiled filaments 7 are piled up so that they are straight or approximately so. Pockets 8 are provided in the peripheral surface of the rotating disc 3 at uniform distances, in which the coiled filaments 7 fall when the disc 3 moves through the trough 5. These pockets have such dimensions that only one coiled filament can deposit itself in each pocket at a time. For each pocket there is provided a pair of gripping devices com-

prising jaws 9 and 10, each pivoted on a stud 11 which passes through the rotating disc. The longer or double-armed plier jaws 9 carry rollers 12 which are kept by means of springs 13 in contact with a stationary notched disc 14 which is fastened to the supporting frame 2. This disc serves to move the plier jaws 9 and 10 somewhat back and forth during the rotation of the disc and to keep them in definite positions with regard to the pockets 8. As long as the rollers 12 are on the higher part of the notched disc 14, the top ends of the plier jaws which end at the peripheral surface 3, lie against the pockets 8 without preventing the entrance and exit of the coiled filaments in these pockets 8. However, as soon as the rollers 12 fall on the lower peripheral part of the notched disc, which will be the case shortly after the entrance of the pockets and plier jaws into the trough 5 and pile of filaments, the top end of each plier jaw moves over a pocket 8 and grips the coiled filament which has fallen into the said pocket. The coiled filaments are thereby solidly enclosed in the pockets and as the disc 3 rotates further are pulled out of the trough 5. As the coiled filaments are fastened only at their center which lies in the pocket, they will hang down with their ends on both sides of the disc 3 after the exit from the trough. At the side of the notched disc 14 which is farthest away from trough 5, the plier jaws 9 and 10 are pulled back from the pockets 8 as the rollers 12 again run on the higher peripheral part of the notched disc 14. The top ends of the plier jaws then release the coiled filament which has already moved past the horizontal position so that it can fall on a slide 15. The latter guides the coiled filament to the place where it is to be used.

A pusher plate 16 is provided to advantage in trough 5, as shown, which is subjected to the action of a spring 17, and constantly pushes the whole pile of filaments downwards and keeps them in contact with the periphery of the rotating disc 3. This ensures that a coiled filament will be pressed into each pocket as it enters the trough. By means of slip springs or brushes 18 provided

at the exit of the slot 4 in the trough, un-  
gripped coiled filaments which are taken  
along by the peripheral surface of the disc  
3 on account of friction are prevented from  
5 leaving the trough 5. In order to ensure a  
frictionless passage of the disc 3 through  
the trough and the pile of filaments 7, the  
plier jaws 9 and 10 are mounted to advantage  
in recesses 19 in the disc 3 as shown.

10 What I claim as new and desire to secure  
by Letters Patent of the United States is:

1. In a filament feeding device, the com-  
bination of a receptacle having a slot in the  
bottom thereof, a rotatable disc mounted so  
15 that its peripheral edge is adjacent the said  
slot and having one or more pockets in said  
edge, one or more gripping devices pivoted  
on the side of said disc and each shaped and  
disposed so that one end portion thereof en-  
20 gages the top portion of a filament located  
in one of said pockets, means for rotating  
said disc, and a cam engaging the other end  
of said gripping device and shaped to open  
and close said device against said filament  
25 as the said disc rotates.

2. In a filament feeding device, the com-  
bination of a receptacle having a slot in the  
bottom thereof, a rotatable disc mounted so  
30 that its peripheral edge is adjacent the said  
slot and having one or more pockets in said  
edge, one or more pairs of gripping devices  
pivoted one on each side of said disc and  
each device shaped and disposed so that one  
end portion thereof engages the top portion  
35 of a filament located in one of said pockets,  
means for rotating said disc, and a cam en-  
gaging the other end of said gripping device  
and shaped to open and close said device  
against said filament as the said disc rotates.

40 3. In a filament feeding device, the com-  
bination of a receptacle having a slot in the  
bottom thereof, a rotatable disc mounted so  
that its peripheral edge is adjacent the said  
45 slot and having one or more pockets in said  
edge, one or more gripping devices disposed  
in slots in said disc and pivoted on the side  
of said disc and each shaped and disposed  
so that one end portion thereof engages the  
top portion of a filament located in one of  
50 said pockets, means for rotating said disc,  
and a cam engaging the other end of said  
gripping device and shaped to open and close  
said device against said filament as the said  
disc rotates.

55 In witness whereof I have hereunto set  
my hand this 15th day of July, 1930.

RUDOLF KUNATH.