Jan. 5, 1932. O. MITCHELL 1,840,049

METAL FEEDING ROLLER

Filed Nov. 10, 1930

Fig. 1.

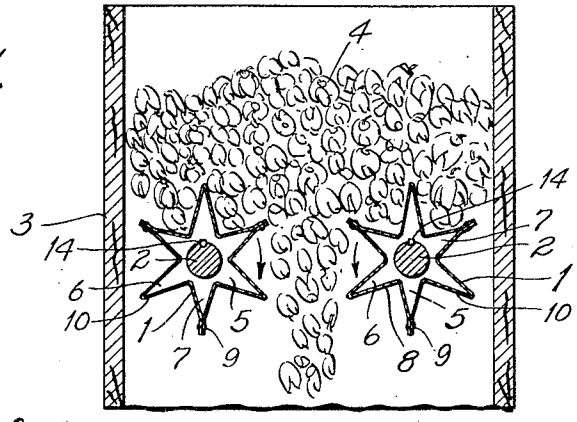


Fig. 2.

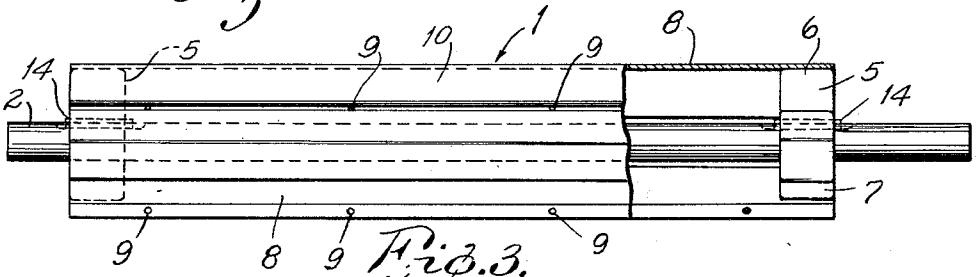


Fig. 3.

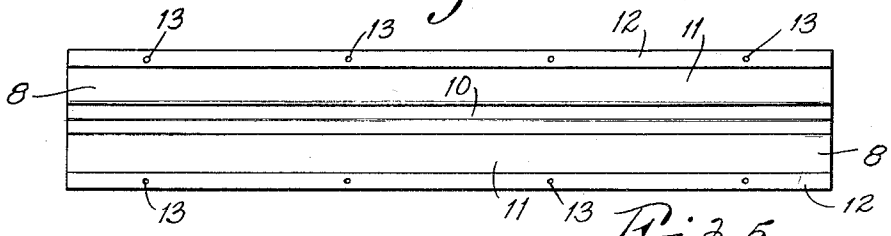


Fig. 4.

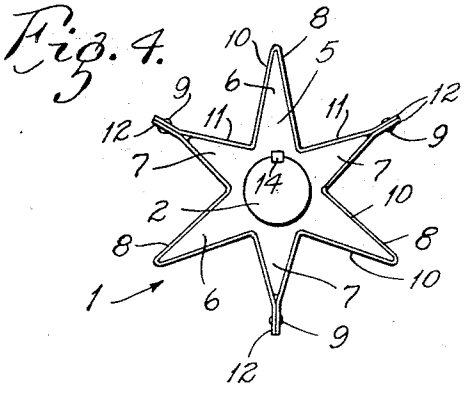
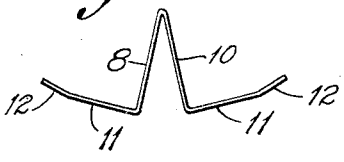


Fig. 5.



INVENTOR
ORVILLE MITCHELL
BY Bruce D. Elliott
ATTORNEY.

Patented Jan. 5, 1932 1,840,049

UNITED STATES PATENT OFFICE

ORVILLE MITCHELL, OF DALLAS, TEXAS

METAL FEEDING ROLLER

Application filed November 10, 1930. Serial No. 494,548.

This invention relates to a novel construction of feeding roller adapted to be used in pairs for withdrawing cotton from hoppers and feeding the same to cleaning or ginning machinery.

The objects of the invention are, to provide an all-metal construction of roller which shall be very strong and yet of comparatively light weight; to provide a construction of roller which, in use, will exert the minimum compressing and maximum pulling action upon the cotton as it is withdrawn from the hopper; to provide a feeding roller having its outer wall or casing consisting of a plurality of casing sections which may be readily formed or shaped with dies, thereby enabling the roller to be rapidly produced, and at a greatly reduced cost as compared with the present type of feeding rollers.

With the above and other objects in view, the invention consists of an all-metal feeding roller star-shaped in cross-section and comprising a plurality of longitudinal casing sections, each of which is provided with a point or flute, said sections being mounted on star-shaped spiders having alternate short points, the flutes of the casing sections being fitted over the longer points of the star-shaped spiders and the side members of adjacent casing sections being fitted against opposite sides of the corresponding shorter points of the spiders and united beyond said points to form points of the star-shaped roller alternating with the flutes thereof and of the same radial length.

The construction of feeding roller now generally employed for the purpose stated, consists of wooden boards or strips extending radially from the shaft of the roller, and held at the ends with a cast iron disk which is secured to the shaft.

The objections to this wooden roller are that they are cumbersome and inefficient, and as the wooden strips must be of considerable thickness in order to have sufficient strength, the result is that the peripheral edges of the strips compress the cotton to such an extent that considerable power is required to rotate the rollers, especially on a mass of damp cotton, and sometimes such rollers will slip on the cotton itself, or break in case of excessive resistance.

My improved feeding roller is of such design and construction as to overcome the objections and difficulties above pointed out in connection with the use of the wooden rollers above briefly described.

My invention is illustrated in the accompanying drawings in which:

Fig. 1 is a cross-sectional view through the upper portion of a hopper provided with feeder rollers constructed according to my invention;

Fig. 2 is a view in side elevation of one of my improved rollers, a part of the casing or shell being broken;

Fig. 3 is a view showing one of the casing sections, viewed from the inner side thereof;

Fig. 4 is a view in end elevation, on an enlarged scale, of one of my improved feeding rollers; and

Fig. 5 is an end view of one of the casing sections.

Referring now the drawings, the numerals 1, Fig. 1, indicate two of my improved feeding rollers, the shafts 2 of which are mounted in parallel relation for rotation in opposite walls of the hopper 3. These feeding rollers, as usual, rotate toward each other, as shown by the arrows, and operate in their revolutions to withdraw cotton, indicated by 4, from the hopper and deliver it in regulated quantities to the cleaning or ginning mechanism.

The rollers 1 are identical in construction, and a description of such construction will now be given.

Mounted near each end of the shaft 2 is a star-shaped spider 5, having preferably six points or arms, although a greater number of such points or arms could be employed if found desirable. As shown by Fig. 4, each spider 5 has three relatively long points 6 which alternate with three shorter points 7. The casing or shell of the roller is formed by mounting casing sections 8, Fig. 5, on the star-shaped spiders and uniting the edge portions of adjacent sections together beyond the outer extremities of the shorter points 7 of the spiders 5, as indicated by the numerals 9, in Figs. 2 and 4.

As shown by Figs. 3 and 5 each of the casing sections 8 is constructed from a single sheet of metal which is formed by dies into the shape in cross-section shown in Fig. 5. That is to say, each of the casing sections is provided with a central, longitudinal flute 10, designed to form one of the blades of the roller, and with upwardly inclined, oppositely directed side members 11, each of which is again bent slightly at an angle at its edge portion, as indicated at 12. The angular portions 12, are provided at intervals with apertures 13 to receive rivets 9, in case this manner of securing the casing sections together is employed. It will be understood however, that the casing sections could be connected together by welding or in any other desired way.

In the case of spiders being employed having six points, as illustrated in the drawings, three casing sections 8 are used to form the shell of the roller. The flute 10 of each of these casing sections is of a size and shape to fit snugly over corresponding points 6 of the two spiders 5, and when so positioned the side members 11 will rest against the sides of the shorter points 7, with the angular portions 12 projecting beyond the outer extremities of these points and in contact. The angular portions 12 of adjacent casing sections are then secured together, as previously explained, by rivets 9, by welding, or in any other preferred manner.

In Figs. 1, 2 and 4, I have indicated the spiders 5 as being fixedly secured on shaft 2 by means of keys 14. Any other desirable way of securing the spiders on the shaft could however be employed.

I claim:

1. A feeding roller comprising end spiders of star-shaped form having alternate long and short points, and a plurality of longitudinal casing sections of a shape to fit over the longer points of the spiders and having side members engaging opposite sides of the shorter points, the edge portions of adjacent members projecting beyond said short points and being secured together.

2. A feeding roller comprising a shaft having spiders of star-shape secured thereon, said spiders having alternate long and short points, and a plurality of longitudinal casing sections mounted on said spiders, each of said casing sections having a central longitudinal flute fitting over corresponding long points of the spiders and side members projecting outwardly from the bottom of said flute at opposite sides thereof, said side members engaging opposite sides of the shorter points of the spiders and having edge portions projecting beyond said short points and secured together.

3. An all-metal feeding roller comprising a shaft, star-shaped spiders secured thereon, with their points in alignment, and a plurality of fluted longitudinal casing sections mounted on said spiders, the edge portions of adjacent sections being secured together beyond alternate points of the spiders, and the flutes of the sections fitting over the remaining points of said spiders.

In testimony whereof, I have hereunto set my hand.

ORVILLE MITCHELL.