O. HÄNSEL.

APPARATUS FOR FEEDING HORSEHAIR FROM A BUNDLE TO A WRAPPING DEVICE.

APPLICATION FILED DEC. 3, 1908.

986,386. Patented Mar. 7, 1911.

FIG. 1.

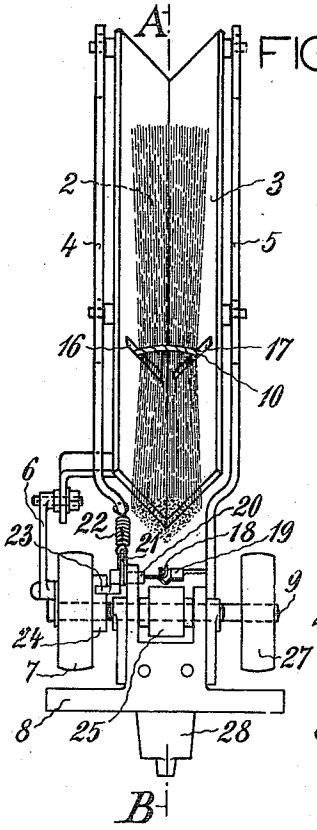


FIG. 2.

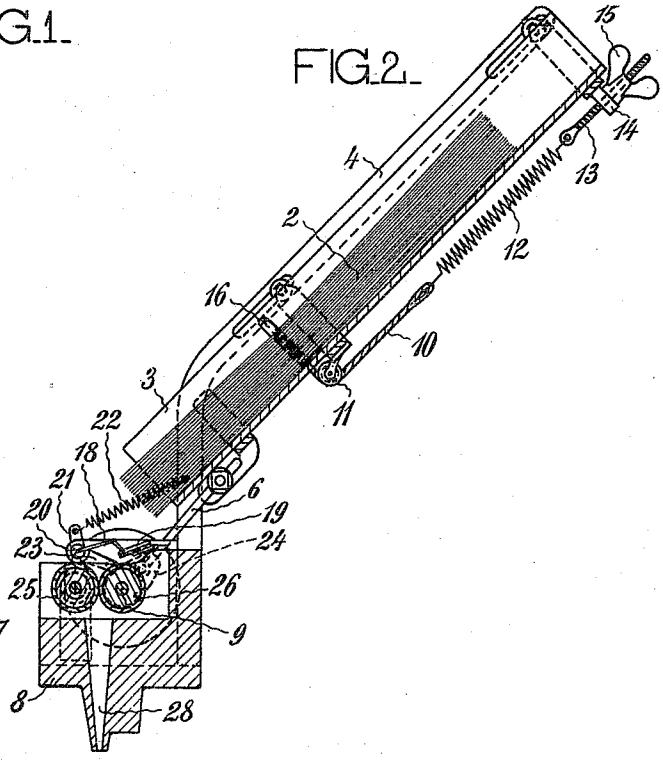


FIG. 3.

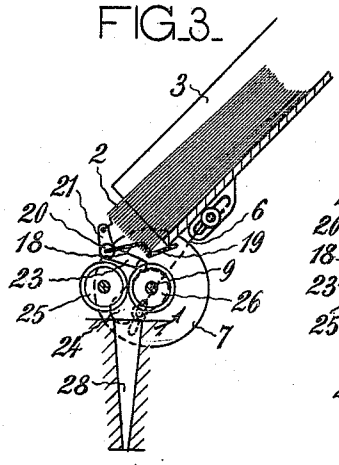


FIG. 4.

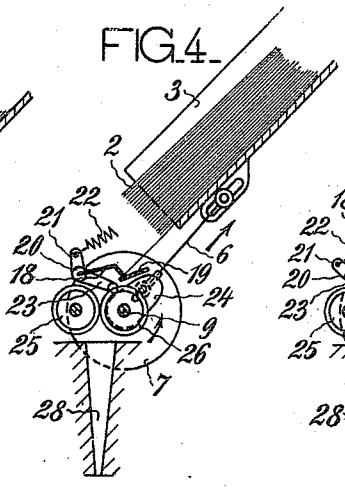
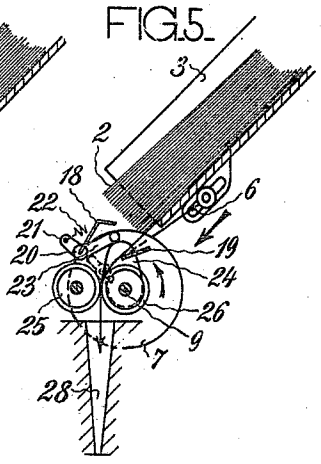


FIG. 5.



Witnesses:
H. V. Brown.
Walter J. Harris

Inventor:
Oswald Hänsel
By Wheeler Bros
Attorneys.

UNITED STATES PATENT OFFICE.

OSWALD HÄNSEL, OF FORST, GERMANY.

APPARATUS FOR FEEDING HORSEHAIR FROM A BUNDLE TO A WRAPPING DEVICE.

986,386. Specification of Letters Patent. Patented Mar. 7, 1911.

Application filed December 3, 1908. Serial No. 465,867.

To all whom it may concern:

Be it known that I, OSWALD HÄNSEL, manufacturer, a subject of the King of Prussia, residing at Forst, in the Kingdom of Prussia and Empire of Germany, have invented new and useful Improvements in Apparatus for Feeding Horsehair from a Bundle to a Wrapping Device, of which the following is a specification.

This invention relates to apparatus for feeding horsehair from a bundle to a wrapping device. The improved apparatus is distinguished from other apparatus for the same purpose by the feature that the bundle of horse-hair is reciprocated lengthwise of its hair relatively to a stationary gripping device followed by a drawing or nipping device arranged above the wrapping device in such a manner that the hair or hairs gripped by the gripping device is or are pulled out during the backward motion of the bundle to such a distance that on the following forward motion of the bundle the projecting hair or hairs are engaged by the drawing or nipping device and passed through a chute to the wrapping device.

The device described and shown in this application is adapted to feed the horse hair to a wrapping device of well-known construction.

The provision of a stationary gripping device greatly simplifies the construction of the driving gear and avoids the vibrations to which gripping devices moving toward and away from a stationary horse-hair receptacle are subjected. The improved apparatus is therefore more certain in its action and the speed of working may be greatly increased without interfering with this certainty of action.

In the accompanying drawings the invention is represented.

In the drawings, the holder or trough for the horse-hair is of the usual cross-section and consists of two side boards meeting at an angle, the gripping device being in continuation of the plane of the bottom of this trough so that all the hairs in the bundle are successively brought within its reach, spring pressure forcing them toward the bottom of the trough.

Figure 1 illustrates the improved feeding device in front elevation. Fig. 2 shows a vertical longitudinal section along line A—B. Figs. 3 to 5 show longitudinal sections representing the working of the apparatus.

The bundle of horse-hair 2 rests in the receptacle or trough 3 which is capable of sliding in the guide-bars 4 and 5. This receptacle or holder 3 receives its reciprocating motion by means of a connecting rod 6 and crank disk 7 which is loose on the shaft 9 supported in the frame 8, and may be constructed as a pulley or a toothed wheel and driven in any suitable manner.

The bundle of horse-hair 2 is put into the trough 3 in such a manner that its lower end projects a little beyond the lower edge of the trough and is secured in position by being forced toward the bottom by means of a suitable spring device. As shown in the drawings this device may consist of a flexible loop or band 10 the ends of which pass over guide pulleys 11 (see Fig. 2) fixed to the back of the trough, one or both ends being furnished with a spring or springs 12 fixed to the trough preferably adjustably. In the drawing the end of a spring 12 is attached to a bolt 13 which is supported in a lug 14 on the receptacle 3, a winged-nut 15 fitting on the other screw-threaded end of the bolt 13 and permitting the adjustment of the tension of the spring 12.

In this construction of apparatus the trough 3 is of triangular cross section and slits 16, 17 are provided in its side walls for the passage of the loop 10. By means of the loop 10 the horse-hair is forced toward the bottom of the trough 3 and the trough being in line with the gripping device all the hairs in the bundle are successively brought within reach of the gripping device.

The gripping device shown in the drawing consists of a hook 18 which coöperates with a fixed bearing 19 on the frame 8. The hook or finger 18 is fixed to a rocking shaft 20 which is supported at one side of the frame or standard 8. This rocking shaft 20 is furnished with a lever 21 on which a spring 22 acts in such a manner that the hook or finger 18 is pressed against the stationary plate or abutment 19. As shown in Figs. 2 to 5, this abutment forms a slight angle with the path of the reciprocating receptacle or holder 3, so that it will have a tendency to deflect the hair or hairs impinging against it. Fixed to the shaft 20 is another lever 23, the free end of which is forced against

a cam 24. The hook 18 will thus be raised against the resistance of the spring once during each revolution of the disk 7. The cam 24 is so arranged and disposed relative to the disk 7 that the cam allows the hook 18 to touch the abutment 19 when the receptacle 3 with the bundle of hair 2 is in its lowest position. While the hook or finger 18 rocks with the shaft 20, the abutment 19 is stationary, the holder 3 reciprocating toward and from this stationary part of the gripping device.

The gripping device is followed by the nipping device also supported in the frame or standard 8. This nipping device consists of two nipping rollers 25 and 26 with fluted or otherwise roughened surfaces. The roller 26 is fixed on the shaft 9 which is also furnished with a driving pulley 27. Just below the nipping rollers is the chute 28, its axis passing through the line of contact of the two rollers. The wrapping device to which the hair is led is also arranged in line with and below the axis of the chute.

The device operates in the following manner:—The two pulleys 7 and 27 are continuously driven but at different speeds, the pulley 27 on the shaft 9 revolving faster according to the length of the hair and the speed of the wrapping device than the pulley 7, as the removal of the hair separated from the bundle must be speedily effected in order to make room for the separation from the bundle of the following hair. As soon as the trough 3 with the bundle of hair 2 has reached its lowest position, Fig. 3, the cam 24 releases the hook 18 so that the hook 18 under the influence of the spring 22 is pressed into the bundle of hair and toward the abutment 19, the hook 18 laying hold of one or more hairs and holding them in position while the trough 3 recedes, Fig. 4. The hair or hairs engaged by the hook 18 is or are thus partially withdrawn from or pulled out of the bundle. When the trough or holder (with the hairs not gripped by the hook 18) is at or near the end of its upward or return stroke, the cam 24 raises the hook 18 off the abutment 19 and thus releases the projecting hair or hairs previously held by said hook. During the next downward movement of the holder 3 the projecting hair or hairs will thus be brought within the reach of the nipping rollers 25, 26, which will convey such hair or hairs into the chute 28 and to the wrapping device.

As soon as the bundle of hair has reached its lowest position the hook or finger 18 is again moved toward the abutment 19 in order to detain a hair or hairs and the cycle again commences.

What I claim is:—

1. The combination of a gripping device, a holder adapted to carry a bundle of horsehair and arranged to move toward and from said gripping device and to present the hair thereto, interdependent means for operating said holder and the gripping device, and a nipping device coöperating with the gripping device to carry the hair away therefrom.

2. The combination of a gripping device, a holder adapted to carry a bundle of horsehair and arranged to move toward and from said gripping device and to present the hair thereto, a nipping device coöperating with the gripping device to carry the hair away therefrom, interdependent means for operating said holder and the gripping device, and independent means for operating the nipping device.

3. The combination of a holder for a bundle of horsehair movable to and fro, a stationary abutment arranged in the path of the hair carried by said holder, a gripping finger movable toward and from said abutment, interdependent means for operating said holder and the gripping finger, and a nipping device coöperating with the gripping device formed by said abutment and finger, to carry the hair away therefrom.

4. The combination of a reciprocating holder for a bundle of horsehair, a stationary abutment arranged in the path of the hair carried by said holder and disposed at an angle to such path, a gripping finger movable toward and from said abutment, interdependent means for operating said holder and the gripping finger, and a nipping device, coöperating with the gripping device formed by said abutment and finger, to carry the hair away therefrom.

5. The combination of a reciprocating holder for a bundle of horsehair, a stationary abutment arranged in the path of the hair carried by said holder, a gripping finger movable toward and from said abutment, a rotary nipping device, coöperating with the gripping device formed by said abutment and finger, to carry the hair away therefrom, a shaft for driving the nipping device, a rotary driving member mounted on said shaft loosely, and operating means, connected with said driving member, for actuating the holder and the gripping finger respectively.

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

OSWALD HÄNSEL.

Witnesses:

JOHANNA TANNER,

FRIDA FRISCHKE.