March 25, 1930. S. J. CAMPBELL 1,751,471

CREPING MECHANISM

Filed May 4, 1929

Fig. 2.

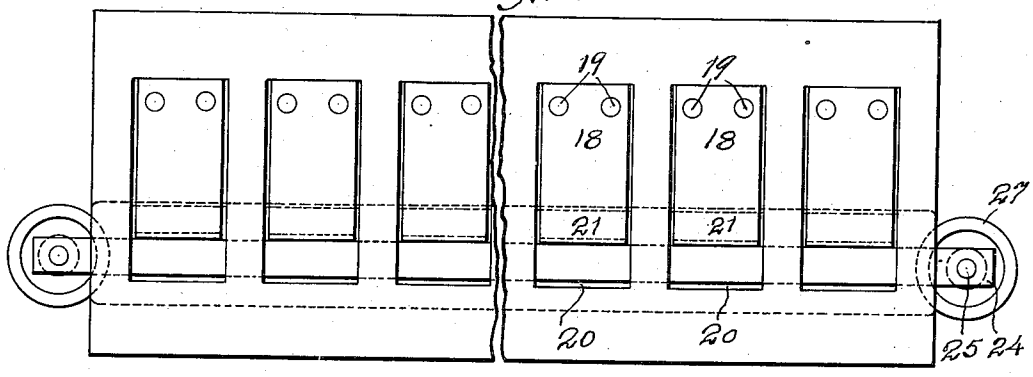


Fig. 3.

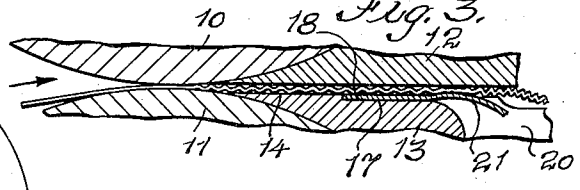


Fig. 1.

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UNITED STATES PATENT OFFICE

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CREPING MECHANISM

Application filed May 4, 1929. Serial No. 360,456.

This invention relates to mechanism for creping paper of various thicknesses, for the purpose of rendering the same elastic; and the object of the invention is to provide means for accommodating localized variations in the thickness of the paper web, which are inevitable in the production of paper and which interfere with the satisfactory creping thereof by methods and appliances commonly in use.

In the present methods of creping, it is common to employ closely spaced members associated with the feed rolls, which furnish a narrow orifice or channel through which the paper web is forced. The walls of the channel serve to retard the paper web sufficiently to cause the same to fold back and forth on itself when subjected to the thrust of the paper web advancing from behind, which retardation results in the creping of the paper.

The present invention is directed to the provision of yieldable strips or members secured to or fitted into one of the channel walls, so that locally yieldable areas are provided to accommodate localized variations in the thickness of the paper web, thereby serving to maintain the necessary compression at all times without interfering with the regular and uniform advance of the paper through the creping members.

Further objects and details will appear from a description of the invention, in conjunction with the accompanying drawings, wherein,—

Figure 1 is a view partly in section showing a pair of feeding rolls associated with the creping devices of the present invention;

Fig. 2 is a top or plan view of the lowermost creping plate showing the spring strips protruding upwardly therefrom; and

Fig. 3 is an enlarged sectional detail showing the creping plates with the paper web passing therethrough.

The creping device of the present invention is associated with a pair of feed rolls 10 and 11 which feed the paper web forwardly. The advancing web is fed between upper and lower creping plates 12 and 13 which are spaced from one another to afford a narrow channel 14 through which the paper web is forced. The edges 15 and 16 of the creping plates are concavely ground to afford a close fit against the respective rollers, the plates being ground down to a knife edge so as to present their inner faces which afford channel walls in tangential relation to the surfaces of the respective rollers.

The lower creping plate 13 is provided on its upper surface with a plurality of shallow recesses 17, into each of which is fitted a narrow spring strip 18 secured at its rear end within its recess by rivets 19.

The creping plate 13 near its center is provided with a plurality of apertures 20, one for each of the recesses 17, into which the recesses merge, the apertures and recesses forming continuations of one another.

Each of the spring strips is bowed upwardly at or near its center 21, above the surface of the lower creping plate, and the forward end 22 of each spring strip is turned downwardly through the aperture, and into a vertical slot or cross channel 23 within which is located an adjusting bar 24, to which all of the spring strips are secured.

The adjusting bar is vertically adjustable by means of screws 25 journalled through journal blocks 26, each screw being operable by a hand wheel 27. This arrangement permits the entire group of spring strips to be adjusted in such a way as to cause the bowed portions of each of the spring strips to project to a greater or less extent above the plane of the creping plate so as to obstruct the advance of the paper web through the channel to the desired degree.

The upper creping plate 12 is secured by bolts 28 to a fixed or rigid portion 29 of the machine frame, and the lower or cutting surface of this plate is plane, although, if desired, the spring strip arrangement provided for the lower creping plate might be duplicated in the upper plate, the main object in view being to afford local yieldability in the wall of the channel by the provision of strips or the like which will individually yield to accommodate variations in the thickness of the paper web.

In operation, the feeding rolls serve to ad-

vance the uncreped paper web into the space between the creping plates, at which point it will encounter the restriction afforded by the upwardly projecting spring strips, so that its advance will be retarded and it will tend to fold back and forth as it is forced forward from behind, thereby producing the creped effect. The spring strips will yield from time to time as required to accommodate variations in thickness, without, however, impeding or interfering with the uniform advance of the creped paper web as it is fed forward from behind.

Although the invention is shown as applicable to a mechanism where the creping is afforded by two creping plates in spaced relation to one another, it is not the intention, unless otherwise indicated in the claims, to limit the invention to an arrangement in which the creping channel is necessarily afforded by two plates, since it is contemplated that the creping channel might be otherwise provided, and it is therefore the intention to cover any arrangement in which at least one of the walls of the creping channel is provided with locally yieldable areas to accommodate variations of thickness in the paper web.

I claim:

1. In creping mechanism, the combination of means for forwardly feeding a web of paper, and creping devices associated with said feeding means and in closely spaced relation to one another to furnish a restricted channel for the retarded passage of the paper web, one of the walls of said channel being of yielding character to accommodate variations in the thickness of the paper web.

2. In creping mechanism, the combination of means for forwardly feeding a web of paper, and creping devices associated with said feeding means and in closely spaced relation to one another to furnish a restricted channel for the retarded passage of the paper web, one of the walls of said channel including individually yieldable sections to accommodate localized variations in the thickness of the paper web.

3. In creping mechanism, creping devices in the form of closely spaced members affording a channel for the retarded passage of the paper web, one of said members including yieldable sections adapted to accommodate localized variations in the thickness of the paper web.

4. In creping mechanism, creping devices in the form of closely spaced members affording a channel for the retarded passage of the paper web, one of said members including yielding strips extending parallel with the line of movement of the paper web to accommodate localized variations in the thickness of the paper web.

5. In creping mechanism, creping devices in the form of closely spaced members affording a channel for the retarded members of the paper web, one of said members being provided with spring sections socketing within said member and normally extending above the plane thereof and adapted to be compressed toward the plane thereof to accommodate localized variations in the thickness of the paper web.

6. In creping mechanism, creping devices in the form of closely spaced members affording a channel for the retarded passage of the paper web, one of said members being provided with longitudinally extending spring strips socketing within said member and normally extending above the plane thereof and adapted to be compressed toward the plane thereof to accommodate localized variations in the thickness of the web.

7. In creping mechanism, creping devices in the form of closely spaced members affording a channel for the retarded passage of the paper web, one of said members being formed with a plurality of longitudinally extending slots, and spring strips secured within said slots and normally protruding above the plane of said member and adapted under compression to lie flush with the plane of said member to accommodate variations in thickness of said web.

8. In creping mechanism, creping devices in the form of closely spaced members affording a channel for the retarded passage of the paper web, one of said members being provided with a plurality of longitudinally extending slots, spring strips rigidly secured at their inner ends within said slots and having their intermediate portions bowed outwardly into said channel, and having their free ends outwardly extending through said slots to furnish yieldable areas in the channel wall for accommodating variations in the thickness of the paper web.

9. In creping mechanism, creping devices in the form of closely spaced members affording a channel for the retarded passage of the paper web, one of said members being provided with a plurality of longitudinally extending slots, spring strips rigidly secured at their inner ends within said slots and having their intermediate portions bowed outwardly into said channel and having their free ends outwardly extending through said slots, and means engaging said free ends for adjusting the same to furnish yieldable areas in the channel wall for accommodating variations in the thickness of the paper web.

10. In creping mechanism, creping devices in the form of closely spaced members affording a channel for the retarded passage of the paper web, one of said members being provided with a plurality of longitudinally extending slots, spring strips rigidly secured at their inner ends within said slots and having their intermediate portions bowed outwardly into said channel and having their

free ends outwardly extending through said slots, a bar to which the free ends of the group of spring strips are secured, and means for adjusting said bar to vary the protrusion of said bowed portions into said channel to afford yieldable areas for accommodating variations in the thickness of the paper web.

In witness that I claim the foregoing I have hereunto subscribed my name this 26th day of April, 1929.

SAMUEL J. CAMPBELL.