Dec. 24, 1935. E. I. FLATEBOE 2,025,445

WIRE FACED ROLL FOR PAPER MAKING MACHINES

Filed Dec. 19, 1934 2 Sheets-Sheet 1

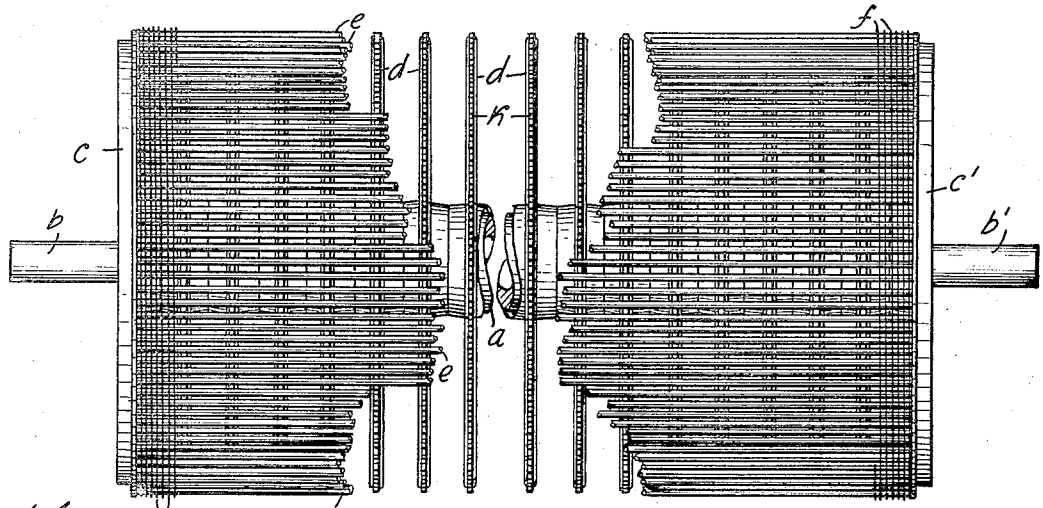


Fig. 1.

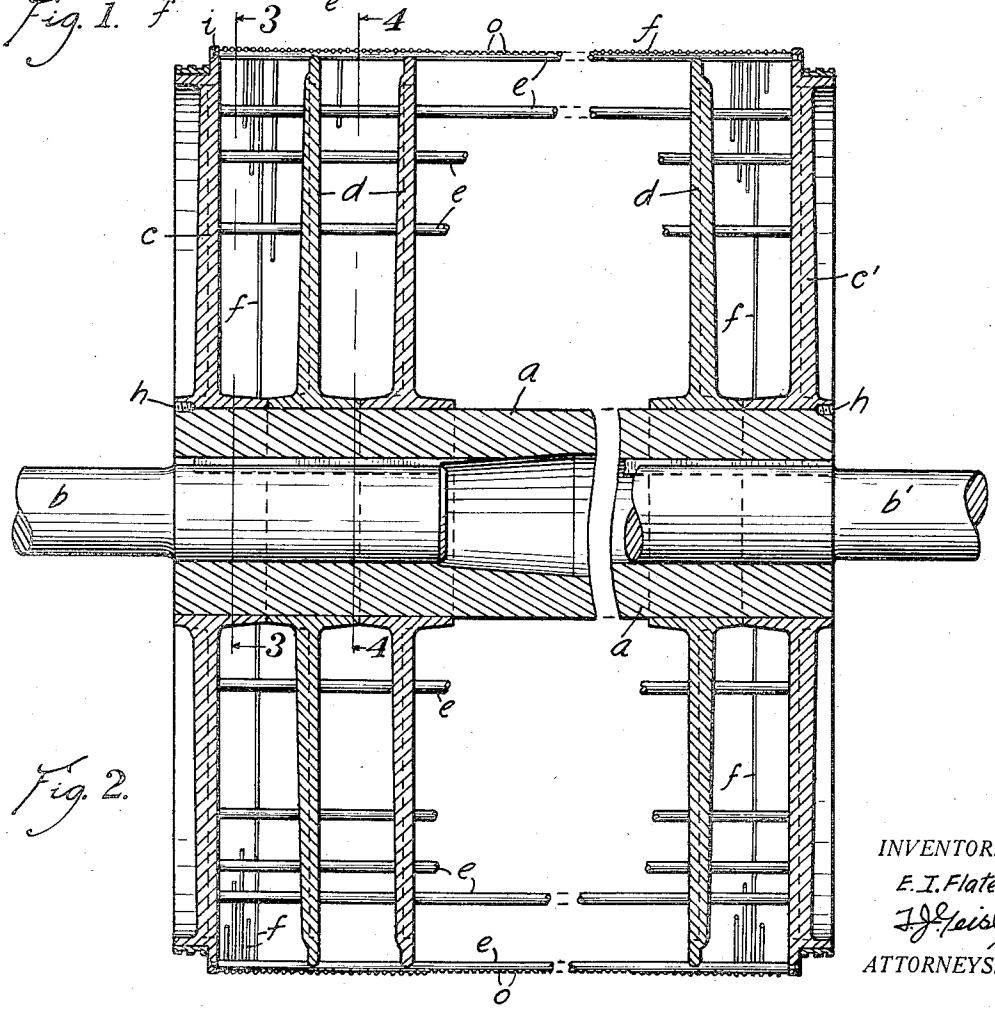


Fig. 2.

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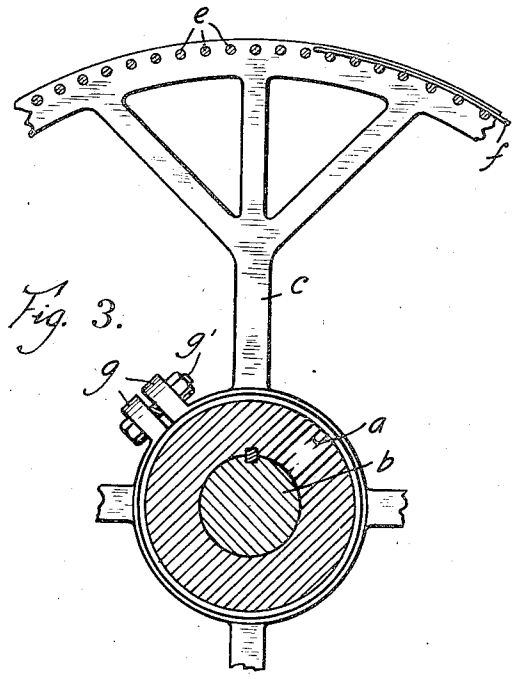


Fig. 3.

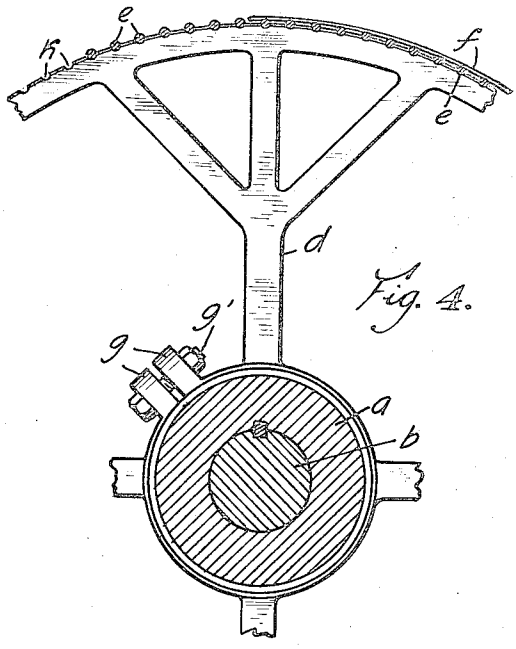


Fig. 4.

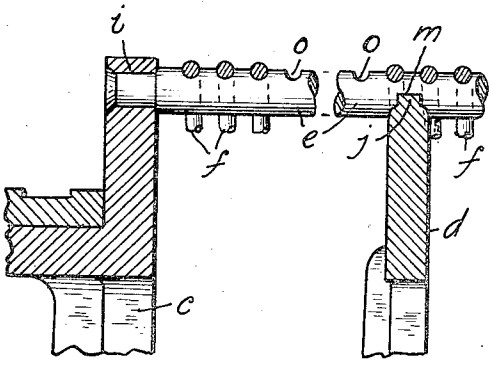


Fig. 5.

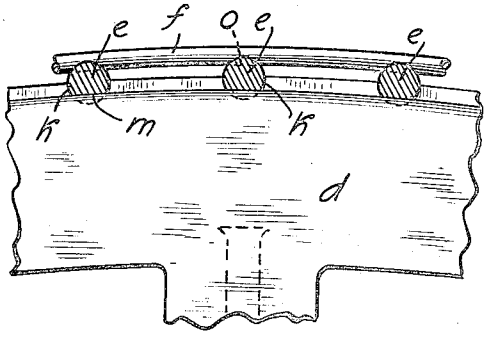


Fig. 6.

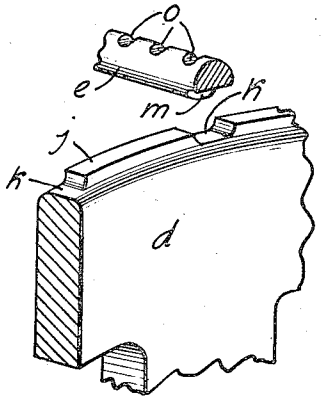


Fig. 7.

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UNITED STATES PATENT OFFICE

2,025,445

WIRE FACED ROLL FOR PAPER MAKING MACHINES

Einar I. Flateboe, Everett, Wash.

Application December 19, 1934, Serial No. 758,291

6 Claims. (Cl. 92—48)

My invention relates to the particular built-up cylinders or rolls used in paper manufacture commonly called "mould rolls" and also "dandy rolls". These rolls are made up generally of spiders or open disks—comprising radial arms carrying rims—mounted on a shaft, with rods carried by the peripheries of the rims of the spiders, the rods extending lengthwise of the roll, and the roll so formed being wound with wire, to complete the skeleton body, and in addition, being generally covered with wire screen or mesh on the outer cylindrical surface.

Heretofore, with rolls of this description, difficulty has arisen due to the fact that the built-up construction has not proved sufficiently rigid or durable. There is a tendency in such rolls for lateral deflection of the rims of the spiders to occur; and even a slight deflection of the rims is sufficient to cause the longitudinal rods, forming the cylindrical surface of the roll, to deflect or twist, which in turn causes the wire wrapping to work loose on the rods, and then a serious condition results.

The object of my invention is to prevent such deflection and incidental results in a simple, practical and relatively inexpensive improvement in the method of and means employed in constructing said rolls.

A specific object of my invention is to provide interlocking means between the spider rims and the longitudinal rods carried by the peripheries of the spiders, whereby rigidity of the roll at its circumference is insured.

I attain these objects by providing interfitting grooves in the longitudinal rods and on the rims of the spiders, as hereinafter fully described with reference to the accompanying drawings, in which:

Fig. 1 is a fragmentary side elevation of a roll embodying my invention with most of the wire wrapping removed, and with the longitudinal rods, which form the cylindrical skeleton surface broken away unevenly to show more clearly the supporting spiders inside the roll;

Fig. 2 is a fragmentary vertical section on a larger scale taken longitudinally thru the center of the roll;

Fig. 3 is a fragmentary, transverse, vertical section on the line 3—3 of Fig. 2 showing a portion of one of the end spiders of the roll;

Fig. 4 is a similar fragmentary transverse, vertical section on the line 4—4 of Fig. 2 showing a portion of one of the inside spiders of the roll;

Fig. 5 is a fragmentary drawing of a portion of Fig. 2 on a still larger scale, illustrating the connections of the longitudinal bars with the end, and the inside spiders;

Fig. 6 is a fragmentary drawing of a portion of Fig. 4, but on a larger scale; and

Fig. 7 shows perspective views of a portion of the rim of an inside spider and a portion of a longitudinal rod, illustrating further the interfitting grooves in each.

Referring first to Figs. 1 and 2, a sleeve *a* is keyed on a pair of shaft sections *b*, *b'* which constitute the shaft of the roll. The roll comprises a pair of end spiders *c*, *c'* and a series of intermediate spiders *d*, *d*, longitudinal rods *e* carried by the peripheries of the spiders, *c*, *c'*, *d*, and wrapping wire *f* wound on the cylindrical skeleton body. The end spiders *c*, *c'*, and the intermediate spiders *d* are rigidly fastened on the sleeve *a* by any suitable means, for example clamping rings having ears *g* thru which are inserted bolts *g'*, as shown in Figs. 3 and 4; and the end spiders *c*, *c'* are also kept in place on the sleeve *a* by set screws *h* (Fig. 2). The diameter of the end spiders *c*, *c'* is slightly greater than that of the intermediate spiders *d*, and the rims of the end spiders are provided with holes *i* in which are inserted the ends of the rods *e*. The rims of the intermediate spiders *d* are narrowed on the outer peripheries forming on each a ridge *j* (see Figs. 5, 6 and 7). Grooves *k* are cut in the ridges *j* at regular intervals corresponding to the location of the longitudinal rods *e*, the shape of said grooves *k* being shown in Figs. 6 and 7. The longitudinal rods *e* are also cut away on one side as at *m*, Fig. 7, at regular intervals corresponding to the distances between the adjacent intermediate spiders *d*, to enable the rods at their cut-out portions to fit snuggly across and in the grooves *k* of the ridges *j* of the intermediate spiders *d*. Thus, a tight interlocking is secured between the rims of the inner spiders *d* and the longitudinal rods *e*, preventing any lateral movement of the rods and preventing any lateral deflection of the rims of the spiders *d*.

On the outer sides of the rods, that is, opposite the cut away portions *m*, grooves *o* are provided for accommodating the wrapping wire *f*. It is apparent that when the roll is completed by winding the wrapping wire tightly around the cylinder skeleton, a very rigid and durable construction is obtained.

While my roll has been described by me as I prefer to construct it, it will be apparent that mechanical changes may be made in its parts within the principle of construction described.

Thus, for example, the word "spiders" describes broadly "open disks".

I claim:

1. A wire faced roll comprising a skeleton drum consisting of a series of spaced spiders rigidly mounted on a shaft, the end spiders being of slightly greater diameter than the intermediate spiders, longitudinal rods carried by the peripheries of said spiders, the ends of said rods secured in the rims of said end spiders, the rims of said intermediate spiders having transverse grooves and said rods having cut-out portions interfitted with said grooves, and wire coiled around said roll enclosing said rods.

2. A wire faced roll comprising a skeleton drum consisting of a series of spaced spiders rigidly mounted on a shaft, the end spiders being of slightly greater diameter than the intermediate spiders, longitudinal rods carried by the peripheries of said spiders, the ends of said rods secured in the rims of said end spiders, the rims of said intermediate spiders having transverse grooves and said rods having cut-out portions interfitted with said grooves, said rods provided with notches on their outer side and wire seated in said notches and coiled around said roll enclosing said rods.

3. A wire faced roll comprising a skeleton drum consisting of a series of spaced spiders rigidly mounted on a shaft, the end spiders being of slightly greater diameter than the intermediate spiders, longitudinal rods carried by the peripheries of said spiders, the ends of said rods secured in the rims of said end spiders, the rims of said intermediate spiders provided with narrow peripherally projecting ridges having transverse grooves and said rods being grooved on their inner side and interfitted with the grooves of said ridges, whereby said rods are interlocked with said intermediate spiders and relative displacement of these parts is prevented, and wire coiled around said roll enclosing said rods.

4. A wire faced roll comprising a skeleton drum consisting of a series of spaced spiders rigidly mounted on a shaft, the end spiders being of slightly greater diameter than the intermediate spiders, longitudinal rods carried by the peripheries of said spiders, the ends of said rods secured in the rims of said end spiders, the rims of said intermediate spiders provided with narrow peripherally projecting ridges having transverse grooves and said rods being grooved on their inner side and interfitted with the grooves of said ridges, whereby said rods are interlocked with said intermediate spiders and relative displacement of these parts is prevented, said rods provided with notches on their outer side and wire seated in said notches and coiled around said roll enclosing said rods.

5. In a wire faced roll comprising a skeleton drum consisting of a series of spaced spiders rigidly mounted on a shaft, and longitudinal rods carried by the peripheries of said spiders, the rims of said intermediate spiders having transverse grooves and said rods having cut-out portions interfitted with said grooves.

6. In a wire faced roll comprising a skeleton drum consisting of a series of spaced spiders rigidly mounted on a shaft, and longitudinal rods carried by the peripheries of said spiders, the rims of said intermediate spiders provided with narrow peripherally projecting ridges having transverse grooves and said rods being grooved on their inner side and interfitted with the grooves of said ridges, whereby said rods are interlocked with said intermediate spiders and relative displacement of these parts is prevented.

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