

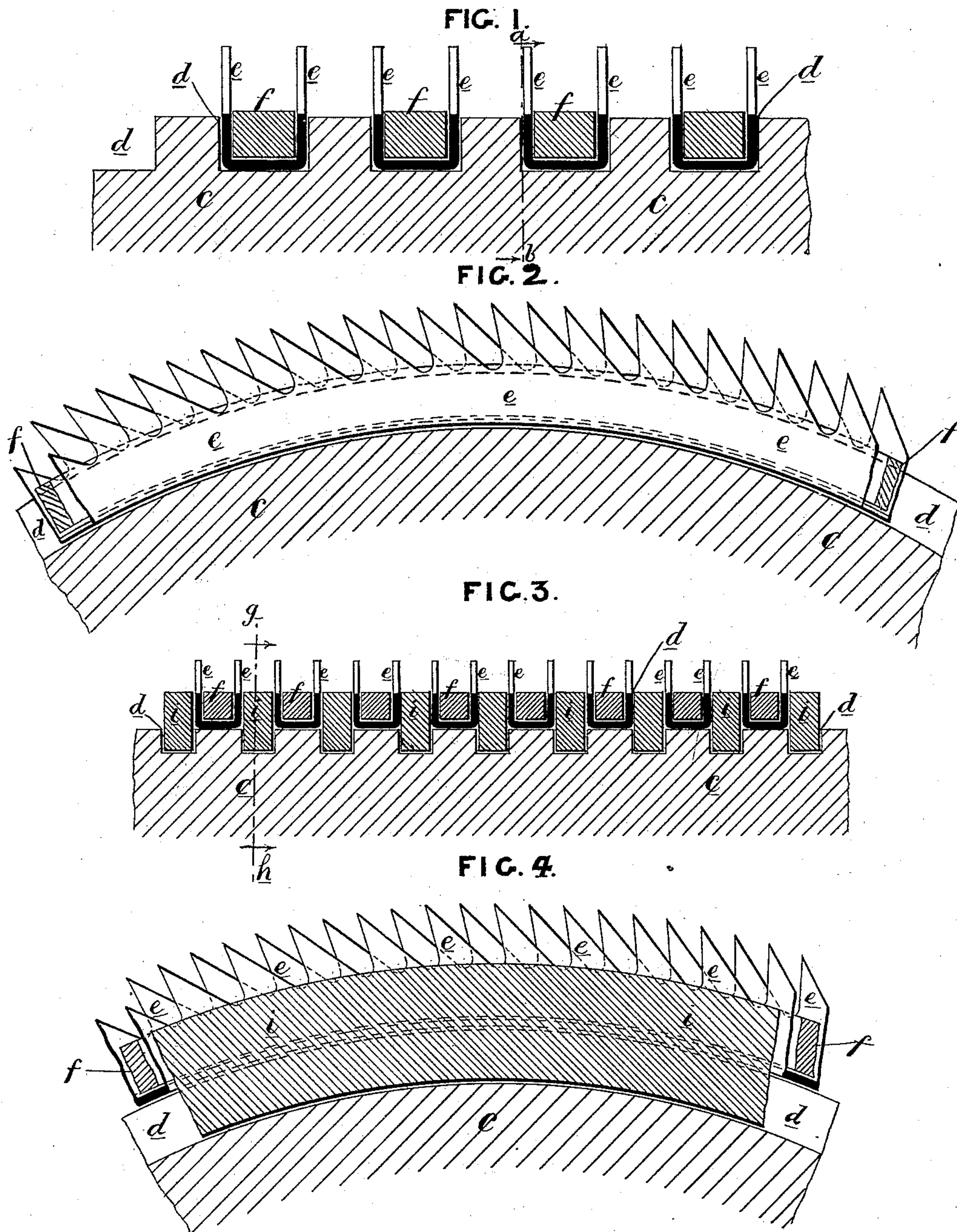
(No Model.)

E. SYKES & E. WILKINSON.

TOOTHED ROLLER FOR MACHINERY FOR OPENING, &c., FIBROUS  
SUBSTANCES.

No. 387,377.

Patented Aug. 7, 1888.



INVENTORS:

Ezra Sykes and

Eli Wilkinson,

By their Attorneys,

Arthur C. Brasher & Co.

WITNESSES:

Wm H. Hannam,

John A. Rennie,



# UNITED STATES PATENT OFFICE.

EZRA SYKES AND ELI WILKINSON, OF HUDDERSFIELD, COUNTY OF YORK,  
ENGLAND.

TOOTHED ROLLER FOR MACHINERY FOR OPENING, &c., FIBROUS SUBSTANCES.

SPECIFICATION forming part of Letters Patent No. 387,377, dated August 7, 1888.

Application filed July 5, 1887. Serial No. 243,323. (No model.) Patented in England September 23, 1886, No. 12,090.

*To all whom it may concern:*

Be it known that we, EZRA SYKES and ELI WILKINSON, both subjects of the Queen of Great Britain, both residing in Huddersfield, county of York, England, have invented certain new and useful Improvements in Toothed Rollers for Machinery for Opening or Preparing Fibrous Substances, (which is the subject of a patent in Great Britain, No. 12,090, dated September 23, 1886,) of which the following is a specification.

This invention has reference to means to be employed in fixing double or trough-shaped saw-teeth to the rollers of opening and preparing machinery, and this we accomplish by cutting or forming spiral or other grooves in or on the periphery of such rollers, and afterward inserting such trough-shaped teeth into the said grooves, but so arranged that the teeth stand above the surface of the rollers. In order to fasten the teeth into the said grooves, we insert and mill into the trough a plain narrow band of metal, which forces the sides of the trough against the sides of the grooves.

In order that our invention may be more fully understood, we herein make reference to the accompanying sheet of drawings illustrative thereof, wherein—

Figure 1 is a vertical section of a portion of a roller provided with trough-shaped teeth fixed to such roller according to our invention. Fig. 2 is a cross-sectional elevation of the same, taken through the line *a b* in Fig. 1. Fig. 3 is a vertical section of a portion of a roller, showing a modified construction; and Fig. 4 is a cross-sectional elevation of the same, taken through the line *g h* in Fig. 3.

A portion of a roller is shown at *c*, which has spiral grooves *d* cut in the periphery of such roller, into which grooves we insert the trough-shaped saw-teeth *e*, the points of the teeth of one side of the trough being cut so as to be opposite the spaces in the other side of the said trough, for the purpose of distributing the points of the teeth. For the purpose of fastening the trough within the grooves cut in the roller, we “mill” or force into the trough a plain narrow strip of metal, *f*, which holds the said trough firmly in the grooves, the meeting ends of such narrow strip being af-

terward made secure by riveting or other suitable means.

It will be understood by persons conversant with the trade that in covering rollers of large diameter with these compound or trough-shaped saw-teeth many lengths will be required to cover a single roller from end to end, as the troughs cannot conveniently be made long enough to reach from one end of the spiral groove to the other end of large rollers, and consequently there will be several joinings of the trough, which are always objectionable, not only because of the time occupied in making the joinings, but because there are more chances of such joints coming loose and doing damage to the machine. By holding the troughs down in position by means of the plain metal strip *f*, which can be rolled of such lengths as will pass over each “jumped joint” of the troughs, the serrated troughs are held firmly in position without the necessity of riveting or flattening each end of the trough within the groove except at the two extremities.

When very fine grooves are cut in the periphery of the roller, and the trough-shaped saw-teeth placed close to each other when operating upon fine fiber, the edges of the grooves cut in the metal roller (which is cast metal) are frequently snapped when milling the teeth within the grooves made in the cast metal roller. To prevent this, we use a wrought-iron or steel strip, *i*. (See Figs. 3 and 4.)

It will be seen that the metal strip *i* is deep enough to stand up prominently above the periphery of the roller *c*, thereby forming between each two strips, *i*, another groove having now wrought-iron or steel sides, and into these grooves we insert the trough-shaped saw-teeth *e*, such saw-teeth *e* being held down by the strip *f*, as previously explained. By this means the trough-shaped saw-teeth can be placed very close together, and the wrought-iron or steel grooves do not get snapped or broken when milling in the trough-shaped saw-teeth, as is sometimes the case when they are milled into cast-iron grooves.

The trough-shaped saw-teeth herein mentioned are made from a flat piece of steel, the serrated edges first being cut, when the flat

strip is drawn through grooved rollers, or they may be folded by other well-known mechanical means.

We claim as our invention—

- 5 1. The combination of a roller having a grooved periphery with a series of serrated troughs entering said groove, and a strip of metal entering said troughs and fastened to the roller, substantially as set forth.
- 10 2. The combination of a roller having a grooved periphery, a strip of metal wound in the grooves thereof and projecting beyond the periphery of said roller, a serrated trough inserted between said metal strips, and a strip

of metal placed within said trough and holding the same in position on the periphery of the roller, substantially as set forth. 15

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

EZRA SYKES.  
ELI WILKINSON.

Witnesses:

C. W. WHITMAN,  
*U. S. Consular Agent.*  
A. B. CROSSLEY,  
*Market Place, Huddersfield.*