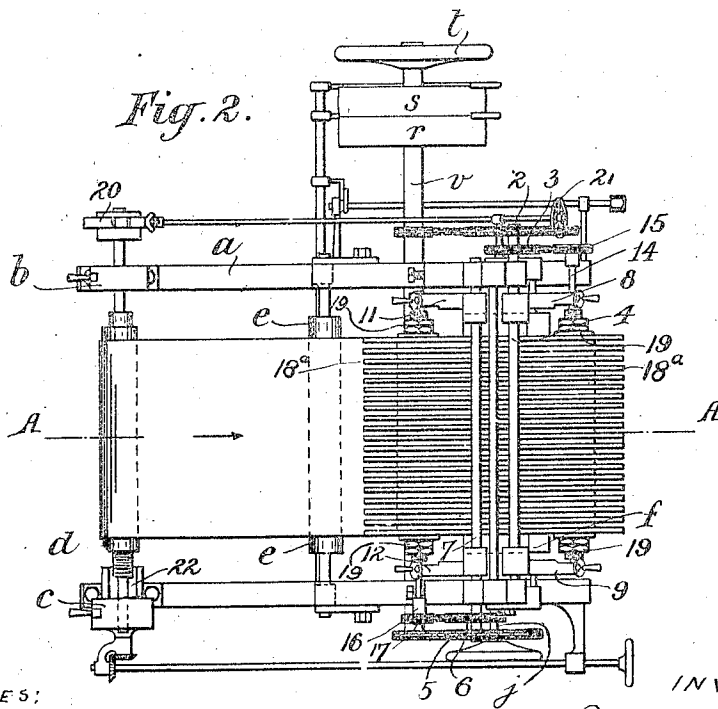
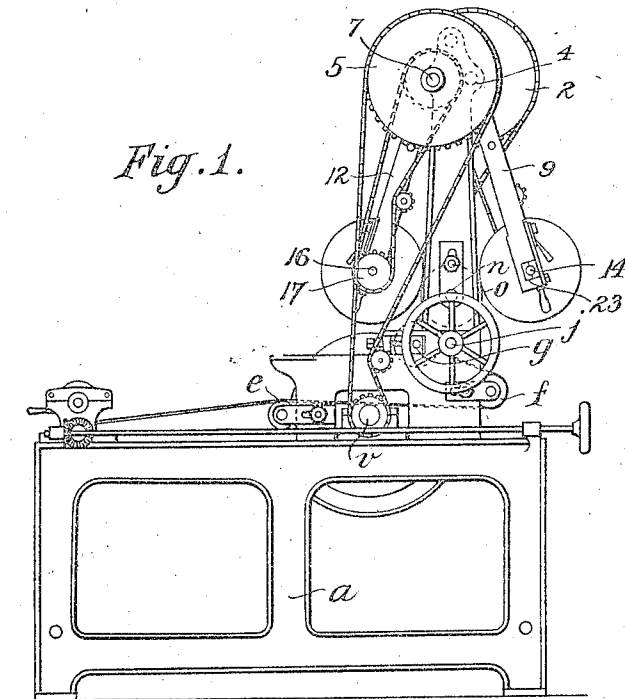


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PAPER SLITTING AND WINDING MACHINE.
APPLICATION FILED DEC. 29, 1911.

1,047,408.

Patented Dec. 17, 1912.

3 SHEETS-SHEET 1.



WITNESSES:

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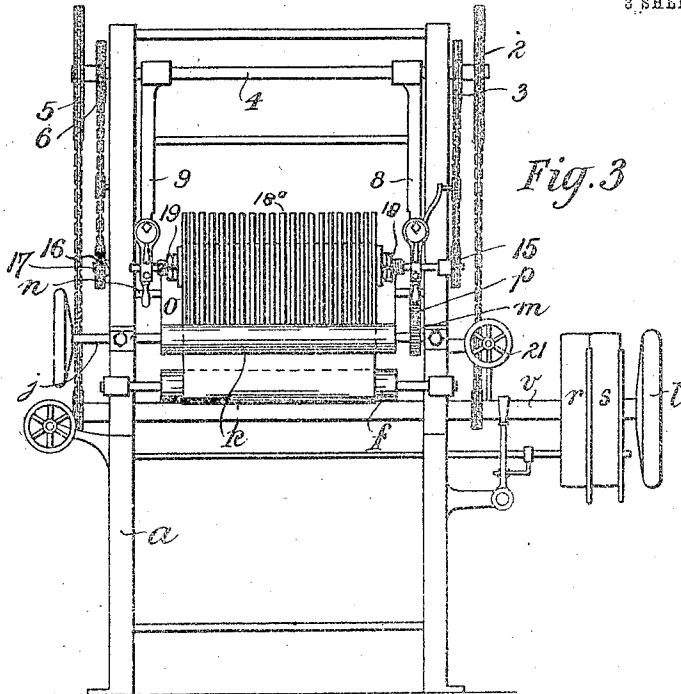


Fig. 3

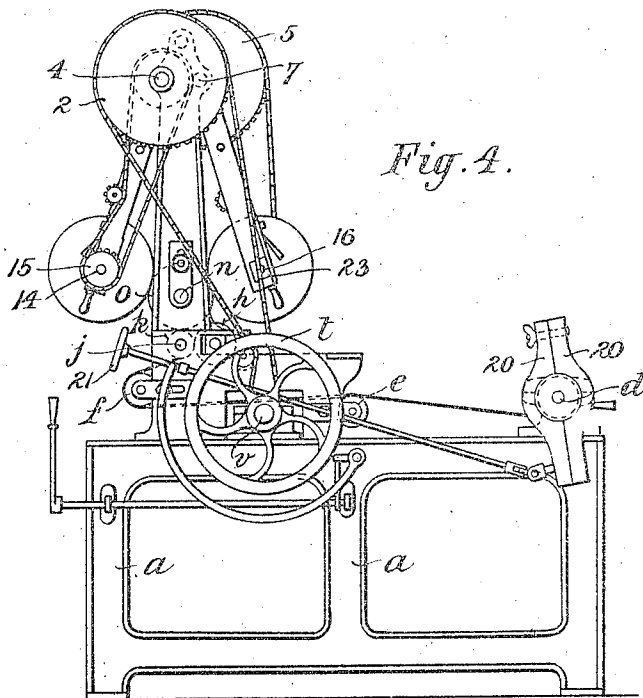


Fig. 4.

WITNESSES:

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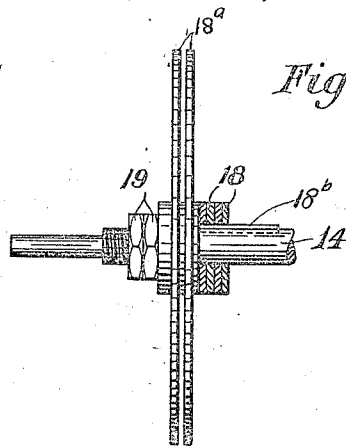
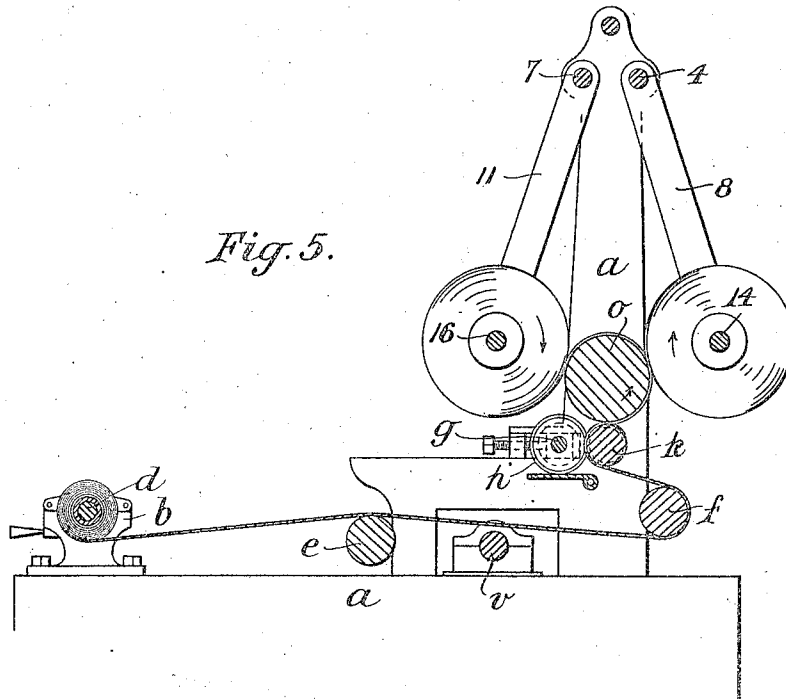
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UNITED STATES PATENT OFFICE.

PONTUS HELLBERG, OF LONDON, ENGLAND.

PAPER SLITTING AND WINDING MACHINE.

1,047,408.

Specification of Letters Patent. Patented Dec. 17, 1912.

Application filed December 29, 1911. Serial No. 668,443.

To all whom it may concern:

Be it known that I, PONTUS HELLBERG, manufacturer, of 1^a Tottenham Court road, London, England, have invented certain new and useful Improvements Relating to Paper Slitting and Winding Machines, of which the following is a specification.

This invention relates to the production of a plurality of narrow strips from a single web of paper wound into coils or spools for the purpose of spinning into threads or the like. The width of the strips employed for this purpose is generally about $\frac{3}{16}$ of an inch.

In the production of narrow strips where they have been wound adjacent to one another on a spindle difficulty has been experienced and time wasted in separating the coils, and this difficulty increased, where attempts were made to wind long lengths in one coil. The production of coils of greater length than 400 yards resulted in great loss and waste owing to the coils being damaged when being separated and rendering them unfit for use in the spinning machine. There is an objection to the use of short coils as much time is wasted in replenishing the spinning machine with new coils. Where coils have been wound upon a number of spindles to avoid the difficulties described, other difficulties have arisen.

The object of the present invention is to so wind the strips that coils or bobbins of greater length, say 4,000 yards can be conveniently wound so as to be ready for use.

According to this invention the machine for cutting paper into strips is provided with spindles having independent collars or bosses on which the strips are wound, said collars or bosses being mounted on two or more spindles and disposed in pivoted frames. The collars or bosses may either be of a greater width than the strip to be wound or of a width equal to the strip, in which latter case distance rings or pieces are provided between the adjacent bosses. The bosses are adapted to be clamped closely together upon the shaft by any desired means. When the strips are being wound in closely adjacent pairs upon a common boss, means are provided whereby the series of pairs are spaced apart from one another.

Referring to the drawings:—Figure 1 is an elevation of one form of apparatus made in accordance with this invention; Fig. 2 is a plan; Fig. 3 is an end elevation; Fig. 4

is an elevation of the other side of the machine shown in Fig. 1; Fig. 5 is a diagrammatic section on line A—A Fig. 2; Fig. 6 is a detail of the spindles 14 and 16.

a is the frame of the machine, *b* and *c* are bearings for the spindle *d*.

e is a guide roller, *f* is a tension roller.

g is a spindle carrying a knife roll *h*, *j* is a spindle carrying a groove roll *k* and a gear wheel *m*.

n is a spindle carrying a drum *o* and a gear wheel *p*. The wheels *m* and *p* mesh with one another.

r and *s* are fast and loose pulleys and *t* a hand wheel on the main shaft *v*.

2 and 3 are sprocket wheels connected together and running loosely on the shaft 4, and 5 and 6 are similar sprocket wheels on the shaft 7.

8 and 9 are arms pivoted on the shaft 4, 11 and 12 are arms pivoted on the shaft 7.

14 is a spindle carried by the arms 8 and 9. 15 is a sprocket wheel on the spindle 14 geared to the sprocket wheel 3. In the same way 16 is a spindle carried by the arms 11 and 12. 17 is a sprocket wheel on the shaft 16 geared to the sprocket wheel 6. These spindles carry bosses 18 which are keyed thereto by feathers 18^b. The strips of paper are wound on the bosses 18 and form disks of paper 18^a. The bosses are securely fixed on the spindles by lock nuts 19, 19.

20, 20 is a pair of brake blocks operated by a handle 21 for the purpose of regulating the tension on the spindle *d*.

22 is a sliding gear for traveling the spindle *d* transversely of the machine for the purpose of adjusting the position of the roll of paper.

Means for adjusting the guide roll *e* and tension roll *f* are provided.

The bearings 23, 23 are adapted to be taken out of the arms 8, 9, 11 and 12 for the purpose of removing the spindles 14 and 16 upon which the strips of paper are wound.

In use the roll of paper to be cut into strips is placed on the spindle *d*, the web of paper is passed over the guide roll *e* around the tension roll *f*, between the cutting rolls *h* and *k* and over the drum *o*. A short length of paper is then cut and alternate strips are pasted on to the bosses on the spindles 14 and 16. The paper is supported by the drum *o* between the interval of winding and slitting and as it is coiled into disks, the disks bear upon the drum and so regu-

late the tension of the paper. Rotary motion is transmitted from the shaft *v* to the shafts 4 and 7 and from the shafts 4 and 7 to the shafts 14 and 16 and from the shafts 14 and 16 to the drum *o* by frictional contact of the disks of paper on the shafts 14 and 16 with the drum *o*. The motion is transmitted from the drum *o* to the groove roll by means of gear wheels *p* and *m*. As the coils of paper increase in diameter the arms 8 and 9, 11 and 12, move on their pivots, the weight of the paper and arms being sufficient for frictional drive. When the desired length of paper has been cut and wound into disks the spindles 14 and 16 are removed from the bearings 23, 23, and the bosses 18, 18 are slid off with the disks of rolled paper.

Instead of employing the intermediate roller against which the spools bear the said intermediate driven roller may be dispensed with, the spools or coils bearing direct against the grooved roller of the cutting device and further, when the intermediate roller is employed it may be made of such

diameter as will permit of more than two spools carrying axles being wound at the same time.

What I claim and desire to secure by Letters Patent is:—

In a machine for slitting a web of paper into narrow strips by cutting rolls and winding same onto separate bosses into the form of disks, a drum disposed between the two spindles carrying said bosses, on which drum the disks of paper rest and by which the paper is supported between the interval of slitting and winding, a grooved roll, rotary motion being transmitted to the grooved roll by frictional contact of the disks of paper with the drum, and gearing between the drum and the groove roll.

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

PONTUS HELLBERG.

Witnesses:

FRANK NASMITH,
LEONARD HORNER.