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APPARATUS FOR SUPPLYING BENDABLE STRIP MATERIAL

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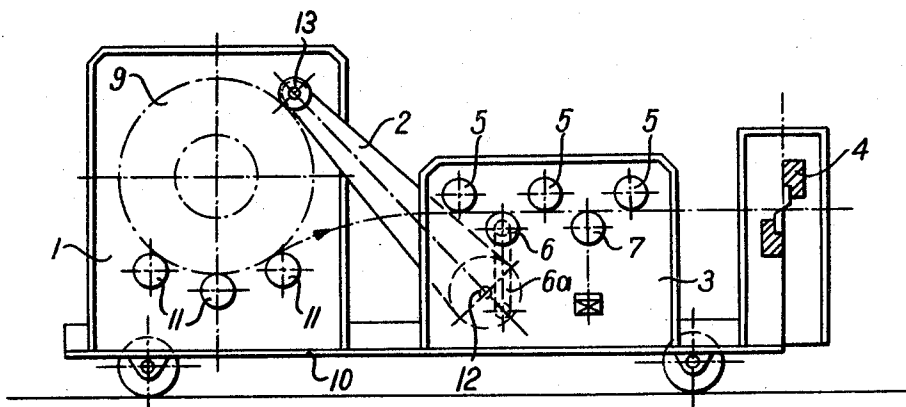


Fig. 1

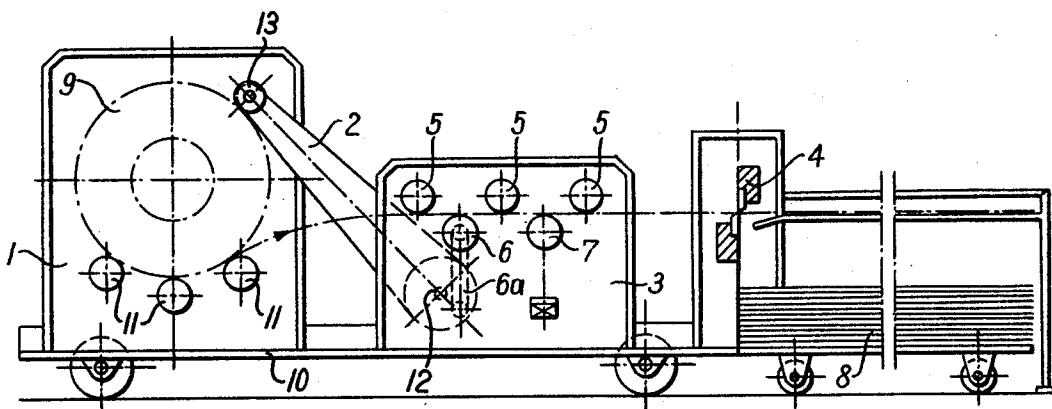


Fig. 2

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1

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6 Claims. (Cl. 72—129)

ABSTRACT OF THE DISCLOSURE

An apparatus for supplying bendable metallic strip material for reinforcement of concrete has a roll from which the material is unwound and then straightened by straightening rollers; one or more of the rollers are driven; a feeler lever senses the diameter of the wound material and changes its position accordingly and thereby alters the position of one of the straightening rollers relative to that of the others.

For easy transportation and to obtain on site sections of strip material for example fabric reinforcement adapted to the particular requirements, it is advantageous for the fabric reinforcement for the surface reinforcement of reinforced concrete structures to be in rolls and not cut-off lengths. Since fabric reinforcement for surface reinforcements must be completely flat and the small roll diameters necessary for transport entail permanent deformation of the material when it is wound, fabric reinforcement rolls have hitherto only been used in exceptional cases, usually when it is not necessary for the reinforcement to be flat, such as for the reinforcement of silo walls. To enable fabric reinforcement wound on rolls to be used for surface reinforcements in road construction, it is known to flatten the unwound strips of fabric reinforcement using conventional steam rollers, but this method apart from obviously depending on the availability of a steam roller, is laborious. It is thus very difficult to produce satisfactory flat fabric reinforcement in this manner.

The object of the invention is to make the use of such rolls of fabric reinforcement practical and it relates to an apparatus for removing strips of fabric reinforcement or the like from a roll, and if necessary cutting off the required lengths in any place, particularly on site. To achieve this, according to the invention such apparatus comprises a holder for holding the roll so that it is rotatable, and a straightener having rollers between which material passes to be straightened, the rollers of the straightener extending over the entire width of the material strip, at least one of the rollers being driven and serving at the same time to advance the material.

Since the permanent deformation of the wound fabric reinforcement depends upon the diameters of the individual layers of the roll, according to a further feature of the invention there is a feeler lever the position of which varies with the diameter of the roll in the holder, this lever being connected to at least one of the straightener rollers to move it radially with respect to the other rollers so that the variations in the non-elastic deformation of the material are compensated according to the diameter of the roll. Flat strips of reinforcement fabric may thus be taken from the roll, even in the case of thick rolls, without making adjustment to the straightener, and the apparatus can therefore be operated by unskilled workmen. A cutter is preferably mounted on the same base as the holder and the straightener, after the straightener, and lengths of the reinforcement fabric meeting the par-

2

ticular requirements may thus be cut off, which avoids any waste of the fabric reinforcement and makes for economical operation. Particularly, the arrangement described can be used on site to produce long flat sections of fabric reinforcement from the roll, whereas sections of such length could not be transported to the site in the flat state. For example, flat fabric reinforcements for concreting motorways may be laid directly on site in lengths of 30 m. and more.

When a large number of fabric reinforcement sections of equal lengths must be made on site, a stacker for the cut-off sections may be connected to the apparatus, the stacker being arranged after the cutter.

It is particularly advantageous to mount the holder, the straightener and the cutter when provided on a common mobile base, for example on a truck, so that the entire unit may be driven from site to site. The stacker may also be of the mobile type, adapted to be coupled to the combination referred to so that it is easily uncoupled.

The invention is very advantageously applied to concrete road construction, especially motorway construction. The concrete is usually laid with track-mounted concreting machines. The apparatus according to the invention in combination with a rail mounted concreting machine, may be mounted on a mobile base having the same track gauge as the concreting machine so that the apparatus may travel over the concrete roadway operating in the same manner as the concreting machine. Flattened fabric reinforcement sections of any length may then be laid on site, and the travel of the apparatus according to the invention along the track may be arranged to comply with the speed of withdrawal of the fabric reinforcement from the roll.

Two examples of apparatus in accordance with the invention are illustrated in the accompanying drawings in which:

FIGURE 1 is a side diagrammatic elevation of the apparatus; and,

FIGURE 2 is a similar view to that shown in FIGURE 1 incorporating a further device.

The view in FIGURE 1 shows a mobile device 10 on which is mounted a roll holder 1, a straightener 3 and a cutter 4; and the view in FIGURE 2 shows a mobile stacker 8 coupled to the mobile device 10 shown in FIGURE 1.

A roll of welded fabric reinforcement 9, is rotatably mounted on rollers 11 in the holder 1. The straightener 3 has fixed rollers 5 and movable rollers 6 and 7; although only the rollers 5 need be driven by a motor, on this example all the rollers are driven. The motor is housed in the straightener 3 and is an electric motor.

The roller 6 is guided in a vertical slot 6a and is coupled in a manner which is not shown to a feeler lever 2 so that when this lever 2 is moved counter-clockwise about a pivot 12 the roller 6 moves upwards. The pivot 12 is near one end of the lever 2 and is mounted in the straightener 3. The angular position of the lever 2, when a roller 13 which is mounted at the end of the lever 2 furthest from the pivot 12 bears on the fabric roll 9, varies with the diameter of the roll 9. The smaller the diameter of the roll used, or the smaller this diameter becomes as the fabric reinforcement is taken off the roll, the smaller the radius of curvature of the roll and the greater the permanent deformation of the longitudinal wires. As the fabric is withdrawn, the lever 2 pivots counter-clockwise out of the position illustrated and as a result the roller 6 is lifted and the countercurvature given to the longitudinal wires during straightening is increased, giving the desired straightening effect.

The roller 7 is also vertically adjustable, but this adjustment is made by hand and not by the lever. This

3

adjustment need only be carried out when adapting the straightener to different fabric wire diameters or different qualities of material. After passing through the straightener, the fabric reinforcement passes through a cutter 4 set to the corresponding height.

As illustrated in FIGURE 1, apparatus of smaller capacity consists of only three devices: a holder; a straightener and a cutter, whereas apparatus of greater capacity, such as that needed on large building sites or in the depots of the larger contractors, also comprises a stacker 8. As shown in FIGURE 2, the stacker 8 is also of the mobile type and is arranged to be coupled to the mobile unit shown in FIGURE 1; the mobile stacker being used only for transportation to the building site.

The apparatus shown in FIGURE 1 may be used on road sites, particularly motorway sites, when the track gauge of the wheels, as already mentioned, is similar to the track gauge of the mobile concreting machine. The apparatus shown in FIGURE 1 may also be mounted on trucks or trailers.

What is claimed is:

1. An apparatus, for use in the removal from a roll of metallic strip material for reinforcement of concrete, which is wound so that the elastic limit of the material is exceeded, comprising a holder adapted to hold the roll so that it is freely rotatable, a straightener having rollers between which the material passes to be straightened, the rollers of the straightener extending over the entire width of the strip and at least one of the rollers being driven and serving at the same time to advance the material, and a feeler lever the position of which varies with the diameter of the roll in the holder as the

4

material is advanced, this lever being connected to at least one of the straightener rollers to change its position with respect to the other rollers so that the variations in the non-elastic deformation of the material are compensated according to the diameter of the roll.

2. Apparatus according to claim 1, in which a cutter is mounted after the straightener on the same base as the straightener and the holder.

3. Apparatus according to claim 2, in which a stacker for stacking strips of material cut to length is arranged after the cutter.

4. Apparatus according to claim 1, in which the holder and the straightener are arranged on a common mobile base.

5. Apparatus according to claim 2, in which the holder, the straightener and the cutter are arranged on a common mobile base.

6. Apparatus according to claim 5, in which a stacker is also mounted on a mobile base and is coupled to the common mobile base so that the stacker is easily uncoupled.

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