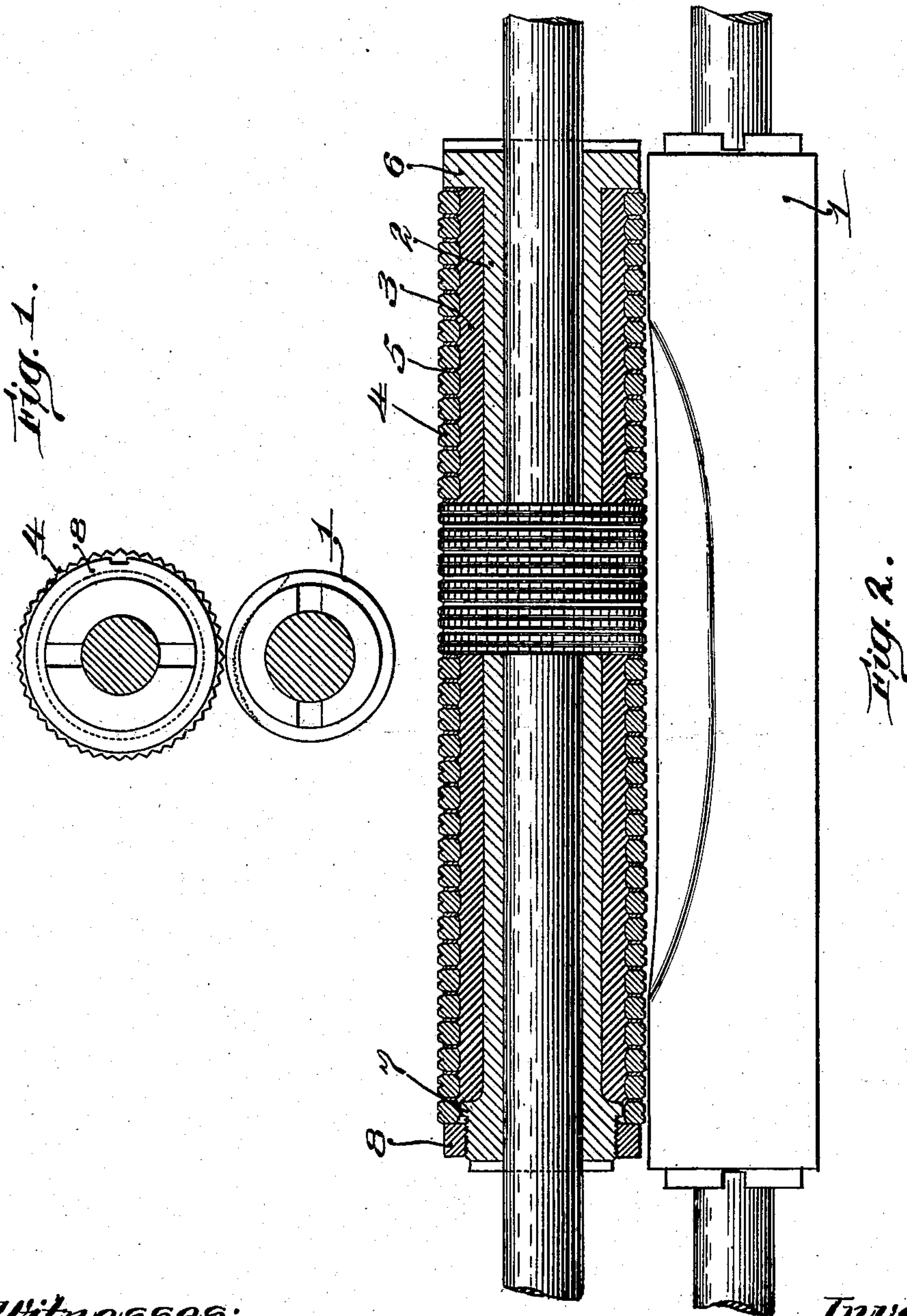


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 PRESSURE ROLL FOR SKIVING MACHINES.
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UNITED STATES PATENT OFFICE.

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PRESSURE-ROLL FOR SKIVING-MACHINES.

No. 916,037.

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To all whom it may concern:

Be it known that I, JACOB R. SCOTT, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Pressure-Rolls for Skiving-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to pressure rolls for skiving machines and is particularly designed for use in skiving machines provided with a die roller or die carrier into the cavity of which the blank to be skived is forced by a pressure roll. The present invention may, however, be advantageously used in other types of skiving machines.

The pressure roll which has heretofore usually been employed in skiving machines, and particularly in skiving machines provided with a die roller or die carrier, is provided with a surface of yielding material, such as rubber, into which the various portions of the blank to be skived are more or less embedded while the blank is being acted upon by the skiving knife. In addition to forcing the blank into the required position and holding it in such position during the action thereon of the skiving knife, the pressure roll is also usually employed to assist in forcing the blank against the knife. As a result of the displacement of the material forming the surface of the roll by the embedding of the blank therein and of the strains put upon the material by the feeding action of the roll, the surface of the roll rapidly deteriorates and becomes cut and torn so that frequent replacement of the roll or renewal of its surface is required. The deterioration of the surface of the roll is especially marked when hard and dry stock is operated upon, and with stock of this character difficulty is also experienced in causing the blank to be properly fed to the skiving knife.

The object of the present invention is to produce a pressure roll which will allow a blank to be embedded therein in substantially the same manner as a rubber covered roll, but which is provided with a practically indestructible surface and which can be used with satisfactory results in skiving blanks of hard and dry stock. With this object in

view the present invention contemplates the provision of a pressure roll having a surface composed of a series of metallic rings compressing a sleeve of yielding material whereby the rings are held from rotation with relation to the sleeve, and at the same time each ring can yield independently. Preferably each ring is composed of a single integral piece of metal as in such case the rings are not distorted when displaced by the embedding of a blank in the roll and the skiving knife can be placed in close proximity to the line of contact of the roll with the blank being operated upon without danger of any portion of the roll coming in contact with the knife during the skiving operation. The provision in a pressure roll for skiving machines of a surface made up of a series of integral metallic rings mounted upon a sleeve of yielding material is believed to be new and is considered to constitute a feature of the present invention whether the rings are arranged to compress the sleeve and be held from rotation thereby or are held from rotation with relation to the sleeve by any other suitable means. The metallic rings are arranged in close proximity to each other so as to form a practically continuous surface and in order to permit the rings to move freely independently of each other, and at the same time to prevent wear or injury to the rings by the rubbing action of one ring against another, the rings are preferably separated by comparatively thin disks or rings of any suitable material. A material which rapidly wears away so as to leave small spaces between the metallic rings is considered preferable, and it has been found in actual practice that separator rings or disks of paper give satisfactory results.

In assembling the various parts of the roll the metallic rings are forced over one end of the roll and upon the sleeve of yielding material, and in order to allow the rings to be forced onto the sleeve without injury to the sleeve the internal surfaces of the rings are preferably beveled at their edges. By providing the internal surfaces of the rings with bevels at their edges the rings are also more securely held by the sleeve from rotation as a space is thereby formed between adjacent rings into which the yielding material of the sleeve can project. To still further increase the space between adjacent rings the sepa-

rator rings or disks are also preferably made with an internal diameter somewhat greater than the internal diameter of the metallic rings.

5 In addition to the features of invention above referred to, the present invention also consists in certain combinations and arrangements of parts hereinafter described and claimed, the advantages of which will be
10 obvious to those skilled in the art from the following description.

The present invention will be clearly understood from an inspection of the accompanying drawings in which—

15 Figure 1 is a view in end elevation of a pressure roll embodying the same together with a die roll with which the pressure roll is adapted to cooperate, the two rolls being illustrated in the position which they have
20 in the machine, and the shafts upon which the rolls are mounted being indicated in section, and Fig. 2 is a view in side elevation of the rolls illustrated in Fig. 1 with the greater portion of the pressure roll shown in section.

25 The die roll, indicated at 1, is of well-known construction and need not be specifically described herein, being disclosed in several patents heretofore granted to the applicant.

30 The pressure roll comprises a rigid core 2, a sleeve 3, of yielding material, such as rubber, mounted thereon, and a surface composed of a series of metallic rings 4 mounted upon the sleeve 3. The rings 4 compress the
35 sleeve 3 so that they are slightly embedded therein, as indicated in Fig. 2, and the degree of compression is such that the rings are held from rotation with relation to the sleeve but are supported so as to be capable
40 of yielding independently of each other when a blank is passed between the pressure roll and the die roll. Between each two adjacent rings a thin disk or ring 5 of paper or any other suitable material is interposed, so
45 that the rings 4, while forming a practically continuous surface, are separated slightly, so as to be capable of moving readily independently of each other without wear or injury.

The sleeve 3 is secured to the core 2 in any
50 suitable or well-known manner, and is located between a flange 6 at one end of the core, and a shoulder 7 at the other end of the core. The ends of the sleeve 3 are thus protected by the flange 6 and shoulder 7, and
55 the sleeve is held against endwise expansion so that it forms a suitable yielding support for the rings 4 even at the extreme outer ends of the sleeve. The rings 4 are assembled upon the roll by being slipped over the end
60 of the core at which the shoulder 7 is located, and are forced lengthwise of the roll until they reach their final position. After all the rings have been placed upon the roll the rings are clamped in position between the
65 shoulder 6 at one end of the core and a nut 8

having a screw threaded engagement with the opposite end of the core. To enable the rings to be forced into position without cutting into or injuring the sleeve 3 the internal surfaces of the rings are beveled at their
70 edges, as indicated in Fig. 2. This beveling of the edges of the internal surfaces of the rings also forms spaces between adjacent rings into which the material of the sleeve 3 can project and thus more securely hold the
75 rings from rotation with relation to the sleeve. The spaces between the rings into which the material of the sleeve 3 projects are also increased by the fact that the internal diameter of the separator rings or disks 5
80 is somewhat greater than the internal diameter of the rings 4.

To enable the pressure roll to cooperate with the die roll in feeding blanks of hard and dry stock the external surface of each ring
85 4 is preferably provided with transverse grooves and with a circumferential groove so that the rings are in effect provided with peripheral teeth which are embedded in and firmly engage the blank as it passes between
90 the pressure and die rolls.

The nature and scope of the present invention having been indicated and a pressure roll embodying the various features of the present invention in their preferred form
95 having been specifically described, what is claimed is:—

1. A pressure roll for skiving machines, having, in combination, a rigid core, a sleeve of yielding material mounted thereon, and a
100 surface composed of a plurality of metallic rings arranged in close proximity to each other compressing the sleeve and held from rotation thereby.

2. A pressure roll for skiving machines, 105 having, in combination, a rigid core, provided at one end with a flange and at the other end with a shoulder, a sleeve of yielding material mounted thereon between said flange and shoulder, and a surface composed
110 of a plurality of integral metallic rings encircling the sleeve and yieldingly supported thereby.

3. A pressure roll for skiving machines, having, in combination, a rigid core, a sleeve 115 of yielding material mounted thereon, a surface composed of a plurality of metallic rings supported by the sleeve, and separator disks interposed between the rings.

4. A pressure roll for skiving machines, 120 having, in combination, a rigid core, a sleeve of yielding material mounted thereon, a surface composed of a plurality of metallic rings supported by the sleeve, and disks separating the rings having a greater internal diameter
125 than that of the rings.

5. A pressure roll for skiving machines, having, in combination, a rigid core, a sleeve of yielding material mounted thereon, and a
130 surface composed of a plurality of metallic

rings compressing the sleeve and beveled at the edges of their internal surfaces.

6. A pressure roll for skiving machines, having, in combination, a rigid core provided with a flange at one end, a sleeve of yielding material mounted on the core with one end engaging said flange, a surface composed of a plurality of metallic rings arranged in close proximity to each other encircling the sleeve and yieldingly supported thereby, and a nut between which and the flange the rings are clamped.

7. A pressure roll for skiving machines, having, in combination, a rigid core, a sleeve

of yielding material mounted thereon, means engaging the ends of the sleeve to prevent endwise expansion thereof, and a surface composed of a plurality of metallic rings arranged in close proximity to each other compressing the sleeve and held from rotation thereby.

In testimony whereof I affix my signature, in presence of two witnesses.

JACOB R. SCOTT.

Witnesses:

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ALFRED H. HILDRETH.