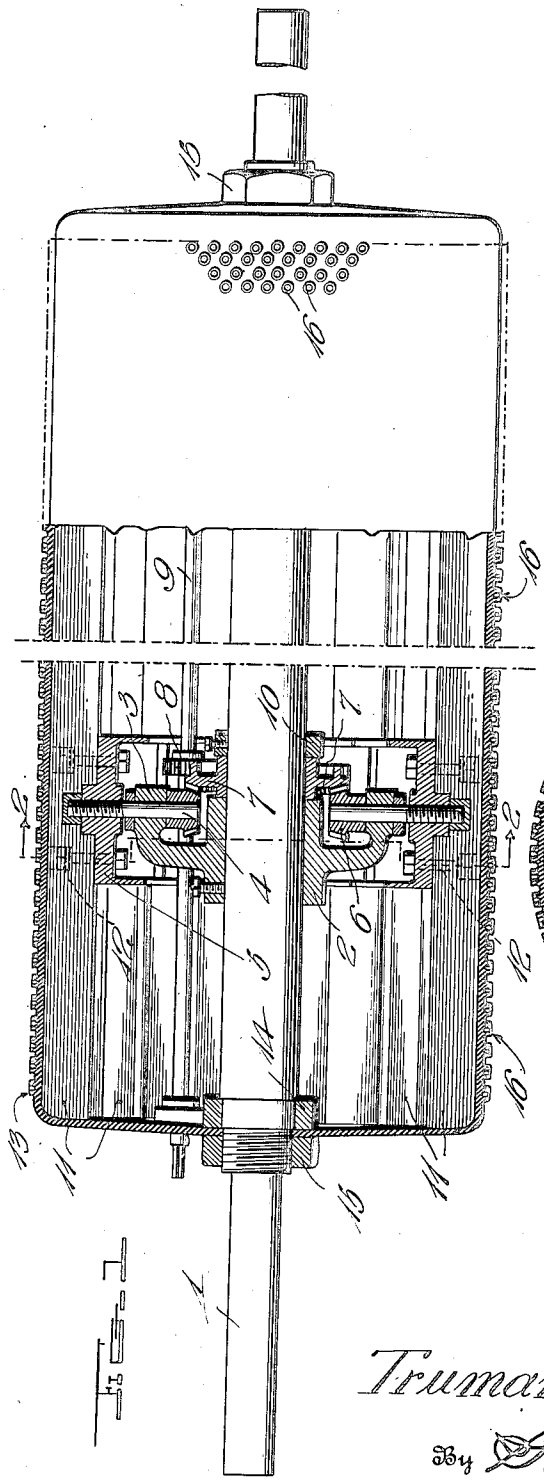
T. A. CUISH, JR.

COUCH ROLL.

APPLICATION FILED JUNE 24, 1920.

1,428,760. Patented Sept. 12, 1922.



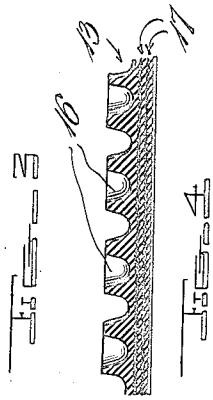


FIG. 2

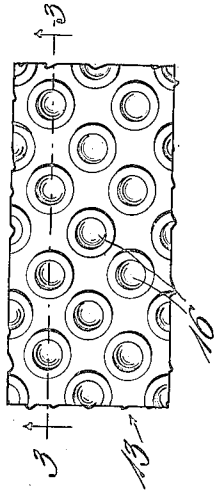


FIG. 4

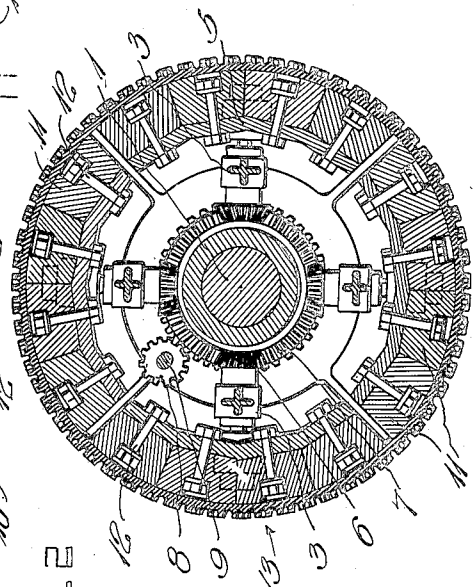


FIG. 5

FIG. 7

Inventor

Truman Alonzo Cuish, Jr.

By Dickerson & Brisco

Attorneys

Patented Sept. 12, 1922. 1,428,760

UNITED STATES PATENT OFFICE.

TRUMAN ALONZO CUISH, JR., OF GREEN BAY, WISCONSIN.

COUCH ROLL.

Application filed June 24, 1920. Serial No. 391,308.

To all whom it may concern:

Be it known that I, TRUMAN ALONZO CUISH, Jr., a citizen of the United States, residing at Green Bay, in the county of Brown and State of Wisconsin, have invented certain new and useful Improvements in Couch Rolls; and I do 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.

This invention relates to an improved couch roll for use on paper making machines.

An object of the invention is to provide a couch roll which is such that it may be adjusted in such a manner as to cause the elastic covering with which it is equipped to fit snugly thereon.

Another object of the invention is to provide a new kind of cover for a couch roll, it being such that it will create a vacuum and assist in pulling the sheets of paper pulp from the usual wire or cylinder onto the endless felt, and will also, during its operation suck or draw a quantity of moisture out of the pulp and help the latter to dry more rapidly.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same:

Fig. 1 is a sectional view, partly in elevation, of a couch roll constructed in accordance with my invention.

Fig. 2 is a vertical sectional view taken on the line 2—2 of Fig. 1, looking in the direction of the arrows.

Fig. 3 is an enlarged sectional view of my improved cover for couch rolls, the section being taken on the line 3—3 of Fig. 4.

Fig. 4 is a top plan view of a portion of said cover.

In carrying out my invention I employ a tubular elastic covering which is slipped endwise onto an expansible core, the latter having considerable range of adjustment which insures that covers of various sizes will fit snugly thereon.

Referring to the drawings, wherein a preferred embodiment of my invention is shown, the numeral 1 designates a rotary shaft on which a spider 2 is fixed. The extremities 3 of the arms of the latter are apertured to form bearings for the radial axles 4 which are rotatable therein. These axles are screw-threaded on their outer ends and have screw threaded engagement with the screw threaded openings in the metallic rim-like member 5. On their inner ends each axle carries a small bevel gear 6 which meshes with the beveled gear teeth of the combined spur and bevel gear member 7.

A pinion 8 on the shaft 9 meshes with the spur teeth of the combined gear 7. The latter is held against displacement by the collar 10. I desire to mention here that where I use singular wording and there is more than one like part shown, I intend the wording, whether singular or plural, to designate all like parts. With the foregoing construction it will be seen that when the shaft 9 is rotated, the rim members 5 will be moved toward or from the axle 1, according to the direction in which the shaft 9 is rotated. To form the wall of the drum, I make use of wooden slats 11 which are longitudinally arranged and are secured to the rim members 5 by means of bolts 12. In use there will, of course, be more than one of the spiders and other parts associated therewith, the number employed being governed according to the length of the roll used. The construction so far set forth forms an open ended cylindrical, expansible core or drum which is made up of a plurality of readily disconnectable sections.

A drum of the above described character is especially adapted for use with an elastic covering of any suitable construction, whether equipped with a plain surface or a suction creating surface, although the latter has been shown. I designate this cover by the numeral 13, it being cylindrical, and preferably made of rubber or some other equivalent material. As before stated this cover is of tubular formation and is slipped endwise onto the above described, or any other similar type of drum. In case the cover does not fit as snugly on the drum as it should, it may be made to fit properly by expanding the drum in the manner already described. It is to be noted that the cover is of a length longer than that of the drum. It is the purpose of this construction to permit the ends of the cover to extend beyond and be brought down over the ends of the drum and into close proximity to the shaft, at which point they are clamped tightly be-

tween the collar 14 and nut 15. This is a novel and convenient way of fastening the cover in position. Attention is directed at this point, to the fact that the cover by preference, has a multiplicity of closely spaced, recessed bosses formed on one side thereof and these function as suction cups 16. Emphasis is to be laid on this feature of construction because of the fact that the suction cups, when the drum is in rotation, create a strong vacuum which helps greatly in pulling the sheets of paper pulp off of the usual wire or cylinder, onto the endless felt. Also, due to the strong suction created, a great quantity of the moisture is extracted from the paper pulp and felt, thus helping the pulp to dry more rapidly than it usually does. It is also to be stated that my couch roll covering will add to the life of the felt, wires, and cylinders. It is desirable to increase the life of the cover itself, so I embed sheets of fabric 17 in the cover as shown more clearly in Fig. 3. Thus, the cover is reinforced and will last indefinitely.

While I have described and shown the cover as being provided with suction cups formed by recessed bosses, I do not desire to limit myself to this particular construction.

The manner in which my couch roll operates is well known by persons skilled in the art to which this invention relates, so, it is not thought that a description thereof is necessary. On the other hand, the employment of a cylindrical elastic covering fitted on an expansible drum seems to be new. In view of this, I will review briefly, the manner of using my couch roll. To this end the cover is slipped endwise over the drum and the ends thereof brought over the open ends of the drum and clamped between the collars 14 and nuts 15. In all probability the cover will not fit as snugly as desired, so by utilizing proper means, the shaft 9 may be rotated in a direction to expand the sectional wall of the drum until the cover fits sufficiently tight and insures effective operation of my roll. It is obvious that by rotating the shaft in one direction, the wall of the drum will be expanded, and by rotating it in the opposite direction the wall will be contracted.

A couch roll constructed in accordance with my invention possesses many worth while advantages, one of the most important of which is the manner in which the cover thereof assists in pulling the sheets of paper pulp off of the usual wire or cylinder onto the felt and at the same time sucks moisture from the pulp and felt.

A careful consideration of the foregoing description taken in conjunction with the accompanying drawings will enable persons skilled in the art to which this invention appertains to obtain a thorough understanding of the same, therefore further description is deemed unnecessary.

It is to be understood that the worm of my invention herein shown and described is to be taken as a preferred embodiment of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

I claim:

1. In a couch roll, a shaft, an expansible drum mounted on the shaft, an elastic cover for the drum, the ends of the cover being brought over the ends of the drum into close proximity to said shaft, and means for securing the ends of the cover around the shaft.

2. In a couch roll, a shaft, an expansible drum mounted on the shaft for rotation therewith, collars fixed on the shaft adjacent the ends of the drum, an elastic covering on the drum, the ends thereof being brought down over the ends of the drum and into close proximity to the shaft, and a nut on the shaft clamping the covering against the collars.

3. A couch roll having a covering comprising an elastic body provided on its outer surface with a plurality of suction cups which create a vacuum and assist in pulling the paper pulp sheets from the usual wire onto the felt and also suck moisture from the pulp.

4. A couch roll covering comprising a sheet of flexible material provided on one side with a multiplicity of suction cups intended to create a vacuum and assist in pulling the paper pulp sheets off of the usual wire onto the felt and at the same time suck moisture from the pulp.

5. A couch roll comprising a sheet of elastic material having a multiplicity of closely spaced bosses on one side thereof, each boss having a cavity formed therein thus permitting them to function as suction cups which are intended to create a vacuum and assist in pulling the paper pulp sheets off of the usual wire onto the felt and at the same time suck moisture from the pulp.

In testimony whereof I have hereunto set my hand.

TRUMAN ALONZO CUISH, JR.