July 14, 1925. 1,545,556

C. G. GUIGNARD

MACHINE FOR USE IN THE MANUFACTURE OF SANITARY NAPKINS AND PADS

Filed March 21, 1924 3 Sheets-Sheet 1

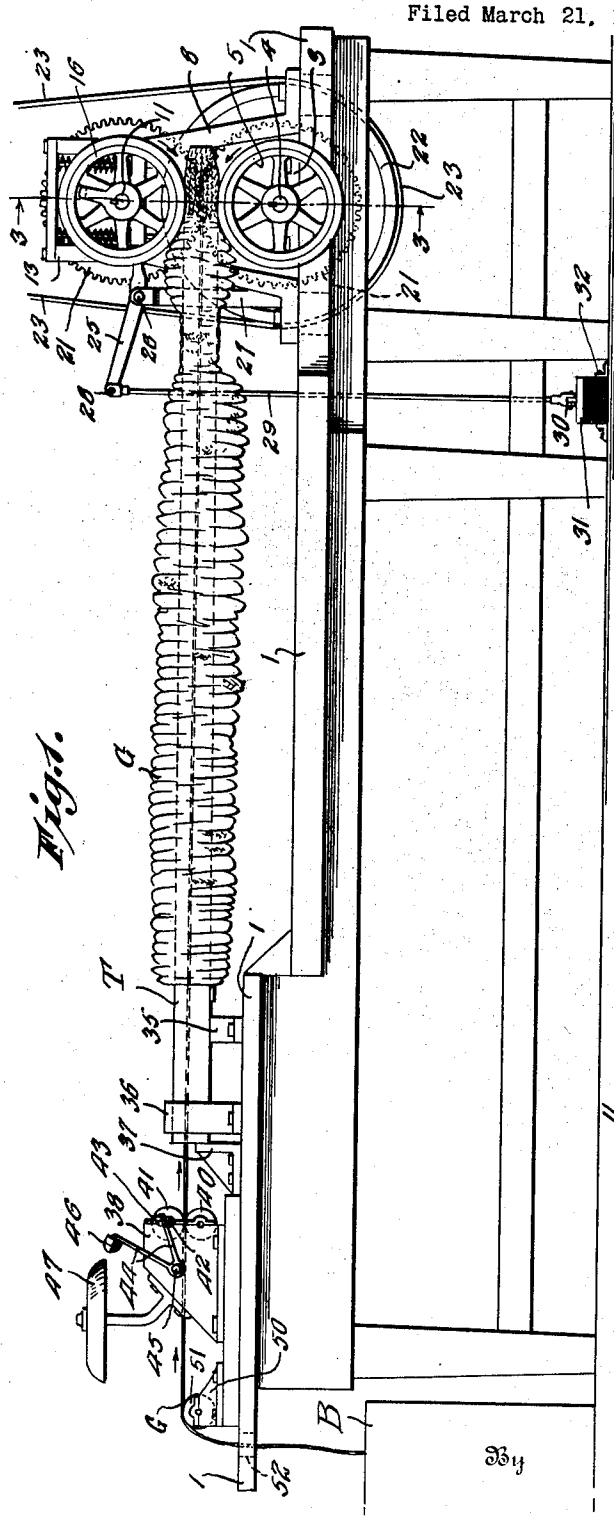


Fig. 1.

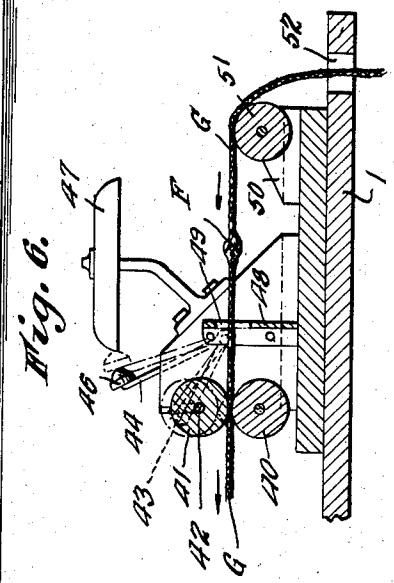


Fig. 6.

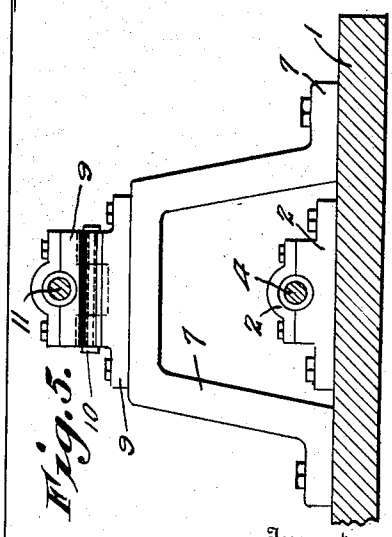


Fig. 5.

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MACHINE FOR USE IN THE MANUFACTURE OF SANITARY NAPKINS AND PADS

Filed March 21, 1924 3 Sheets-Sheet 2

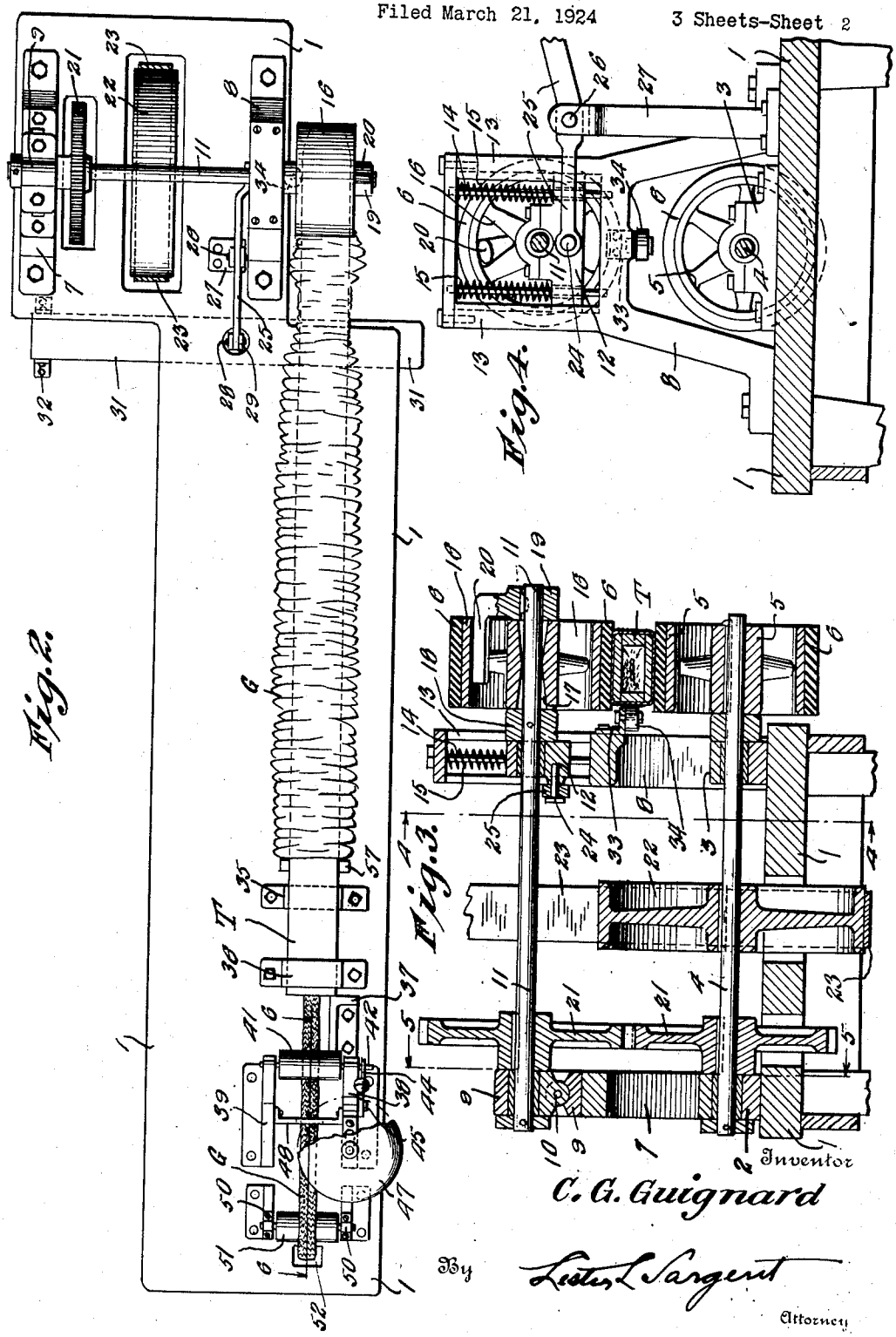


Fig. 2.

Fig. 4.

Fig. 3.

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MACHINE FOR USE IN THE MANUFACTURE OF SANITARY NAPKINS AND PADS

Filed March 21, 1924

3 Sheets-Sheet 3

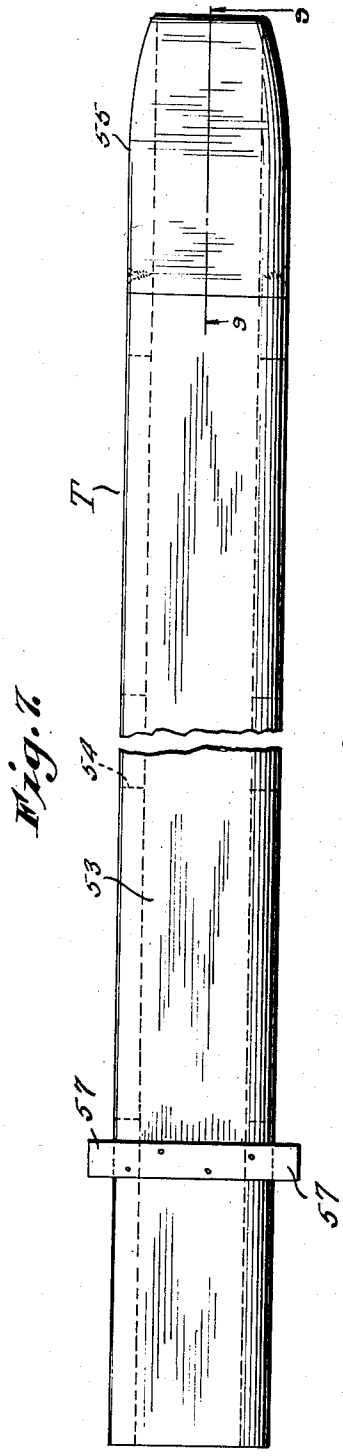


Fig. 7.

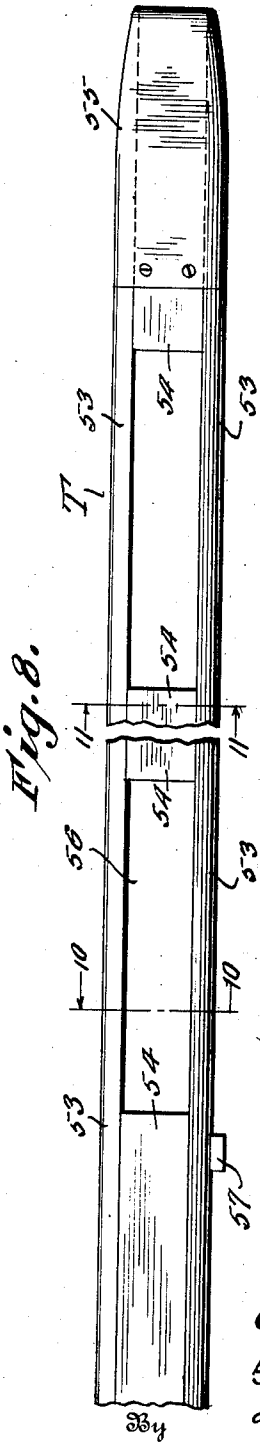


Fig. 8.

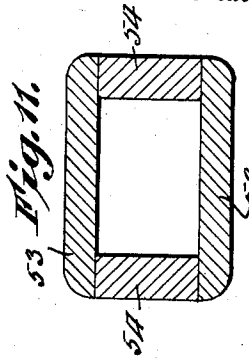


Fig. 11.

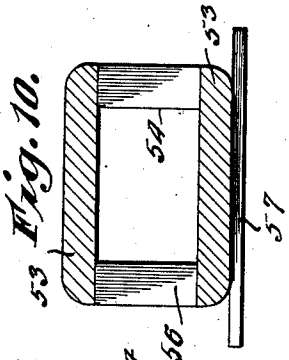


Fig. 10.

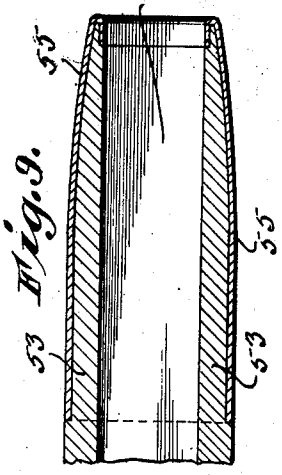


Fig. 9.

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UNITED STATES PATENT OFFICE.

CHRISTOPHER G. GUIGNARD, OF COLUMBIA, SOUTH CAROLINA.

MACHINE FOR USE IN THE MANUFACTURE OF SANITARY NAPKINS AND PADS.

Application filed March 21, 1924. Serial No. 700,933.

To all whom it may concern:

Be it known that I, CHRISTOPHER G. GUIGNARD, a citizen of the United States, residing at Columbia, in the county of Richland and State of South Carolina, have invented a new and useful Machine for Use in the Manufacture of Sanitary Napkins and Pads, of which the following is a specification.

The object of my invention is to provide a novel tool through which a tubular knitted fabric may be carried and reversed, so as to mount it on the outside of the tool; to provide novel mechanical devices for facilitating the above described operation; and to provide novel means for giving an audible signal in case of any defect in the tubular fabric being encountered.

It is also an object of my invention to provide novel means for adjusting and regulating the operation of a machine of this type; and to provide the novel combination and arrangement of parts disclosed in the accompanying drawings, in which—

Figure 1 is a side elevation of my invention;

Fig. 2 is a top plan view of same;

Fig. 3 is a vertical section on line 3—3 of Fig. 1;

Fig. 4 is a vertical section on line 4—4 of Fig. 3;

Fig. 5 is a similar section on line 5—5 of Fig. 3;

Fig. 6 is an enlarged detailed longitudinal section of the audible signal device;

Fig. 7 is a top plan of tube T withdrawn from the machine;

Fig. 8 is a side elevation of same;

Fig. 9 is a longitudinal section on line 9—9 of Fig. 7;

Fig. 10 is a transverse section on line 10—10 of Fig. 8; and

Fig. 11 is a transverse section on line 11—11 of Fig. 8.

Like characters of reference designate like parts in each of the several views.

Referring to the accompany drawings, I provide a suitable table 1 provided with bearings 2 and 3 in which the horizontal shaft 4 is mounted, said shaft carrying the driven pulley 22 driven by belt 23 and the friction wheel 5. Also mounted on the table 1 are pedestals 7 and 8, the pedestal 7 carrying the bearing 9, the two sections of which are pivotally connected by the pivot 10. The pedestal 8 carries the bearing 12. The shaft 11 is mounted in bearings 9 and 12 and carries the friction wheel 16 which is provided with the internally tapered hub 17, tapered outwardly from the central portion thereof as shown in Fig. 3 to permit of a tiltable movement of friction wheel 16. Friction wheels 5 and 16 are both provided with a resilient covering 6 of suitable material such as soft rubber. I provide a vertical extension 13 on pedestal 8 in which are mounted the vertical rods 14 carrying the coiled springs 15 which bear on the bearing 12 and thus tend to press the shaft 11 and friction wheel 16 downward towards the friction wheel 5. I provide a suitable collar 18 on shaft 11 inside of wheel 16, and a suitable collar 19 on the outside of wheel 16 to hold said wheel against sliding movement on the shaft 11. Collar 19 is provided with an L-shaped extension 20 which engages the sprocket of wheel 16.

Referring to Fig. 4, I provide a lever 25 fulcrumed on pivot 26 carried by standard 27, the one end of lever 25 being connected by the member 24 with the vertically adjustable or floating bearing 12. The other end of lever 25 is connected by pivot 28 with rod 29 which is in turn attached by pivot 30 to the foot lever 31 which is pivotally mounted on the floor by members 32.

Referring to Fig. 3, I provide a bracket 33 secured to pedestal 8, this bracket 33 carrying a horizontal guide roller 34 positioned to bear against the side of tube T. Near the rear end of table 1 I provide an inverted U-shaped bracket 36 to releasably hold the rear end of tube T which tube is also supported by the two pedestals 35 and the stop or bracket 37 which bears against the end of tube T near the outer side, as shown in Fig. 2.

At the rear end of table 1, as shown in Fig. 2, I provide small pedestals 38 and 39 carrying the non-adjustable lower roller 40 and the vertically movable upper roller 41, between which rollers the tubular gauze fabric G travels as illustrated in Figs. 1, 2 and 6. Roller 41 is provided with an ex-

tended spindle 42 shown in Fig. 2, in a slot 43 of which the end of bellcrank lever 44 rests. The bellcrank lever is mounted on pedestal 38 by the pivot 45 and carries on its free end the gong hammer 46 positioned in proximity to the gong 47, whereby an audible signal may be given when a defective portion F appears in the gauze fabric G as it passes through the aperture 49 of guide-plate 48 and thence under the vertically movable roller 41, which operates the audible signal when it is lifted by the defective portion F of the gauze tube G. I also provide suitable bearings 50 carrying the guide roller 51 over which the tubular gauze fabric G travels before it passes through the audible signalling rollers previously described. Table 1 is provided with an aperture 52 to guide the gauze fabric G as shown in Fig. 2.

Referring to Figs. 7–11, tube T preferably consists of substantially parallel spaced top and bottom plates 53, and substantially parallel spaced side plates 54, the side plates 54 preferably being short plates to leave the apertures 56, as shown in Fig. 8. Top and bottom plates 53 are tapered near their front end and are covered with the metal nose or wear plate 55 forming a perfectly smooth surface over which the tubular gauze fabric G may be stretched with but slight danger of tearing it. I also provide on tube T near the rear end thereof a suitable stop block 57, as shown in Figs. 1, 2 and 7, against which the fabric abuts.

In operating my invention, the tubular gauze fabric is carried through the aperture 52, over guide roller 51 and between the rollers 41 and 40 and thus through tubes T to the forward end thereof where it is reversed and carried outside the tube over the smooth metal nose 55 being frictionally engaged by the rubber covered friction rollers 5 and 16 which rotate in the direction of the arrows, as shown in Fig. 1, and rapidly pull the gauze tube on the outside of tube T where it is pulled back to form a packed pile of fabric by the operator. This operation is continued until the tube is completely covered with a thick pile of fabric, at which time the operation of the machine is stopped and the tube T carrying the fabric is lifted from the machine and carried to another machine where the next operation in the manufacture of the article is begun. The operator by operating the foot pedal 31 can raise or lower the friction wheel 16 to regulate the tension or to permit of the pulling of the tubular fabric over the tube in case it has become torn and a portion of the fabric tube has to be pulled over by hand as will occasionally occur where there is a defect in the fabric or if the apparatus works out of correct alignment. By providing the friction wheel 16 with the tapered hub as shown in Fig. 3 an automatic adjustment of the friction wheel 16 while in operation is obtained by simple means.

What I claim is:

1. As a new article of manufacture, a tube formed of spaced parallel top and bottom members, and having spaced parallel side members, the side members having longitudinal openings permitting of access to the interior of the tube for convenience in getting at the fabric to repair it or move it along when torn, the tube being open at both ends and having a restricted tapered metal nose member covering one end of the outer surface of the tube and providing a continuous smooth surface over which a tubular fabric of delicate texture may be readily drawn without tearing.

2. In combination with the device described in claim 1, a stop member affixed to the aforesaid tube near the rear end thereof and against which the fabric pulled on the tube will abut.

3. In a machine of the class described, the combination of a table, a tube open at both ends and having a tapered smooth surfaced nose adapted to permit of a tubular fabric of delicate texture being fed therethrough and over the tube without tearing, a rubber covered friction wheel on which the tube rests, a second rubber covered friction wheel engaging on the upper side of the tube, means for driving said friction wheels in a direction whereby the fabric will be fed from within the tube on to the outside thereof, and means resiliently holding the uppermost friction wheel in operative contact with the tube.

4. In a machine of the class described, the combination of a table, a tube having a tapered smooth surfaced nose adapted to permit of a tubular fabric being fed thereover without tearing, a rubber covered friction wheel on which the tube rests, a second rubber covered friction wheel engaging on the upper side of the tube, means for driving said friction wheels in a reverse direction for feeding the fabric from within the tube on to the outside thereof, and means under the control of the operator for releasing one of the friction wheels from contacting with the tube.

5. In combination with the apparatus described in claim 4, the uppermost friction wheel having an internally tapered hub, said hub being tapered outwardly toward both sides from a central portion thereof, whereby the friction wheel can freely tilt from one side to the other and automatically adjust itself to the work as the tubular fabric travels beneath it.

6. In an apparatus of the class described, the combination with a table; a tube on which a tubular fabric is adapted to be fed; friction wheels for feeding the tubular fab-

ric on to the outside thereof after it has passed through the tube; and an audible signal device through which the tubular fabric passes before it enters the tube; said signal device being arranged to be sounded when any defect in the fabric passes said mechanism, to warn the operator.

7. In an apparatus of the class described, an audible signal apparatus comprising rollers arranged one above the other and between which a tubular fabric may pass, one of said rollers being vertically movable, a bellcrank operatively connected to the vertically movable roller, said bellcrank carrying a gong-sounding member, and a gong adapted to be struck when the uppermost roller is moved vertically by some defect in the fabric passing beneath same.

CHRISTOPHER G. GUIGNARD.