

(No Model.)

A. KENWORTHY.

EXPANSIBLE DRUM FOR COILING SHEET METAL.

No. 576,677.

Patented Feb. 9, 1897.

Fig. 1.

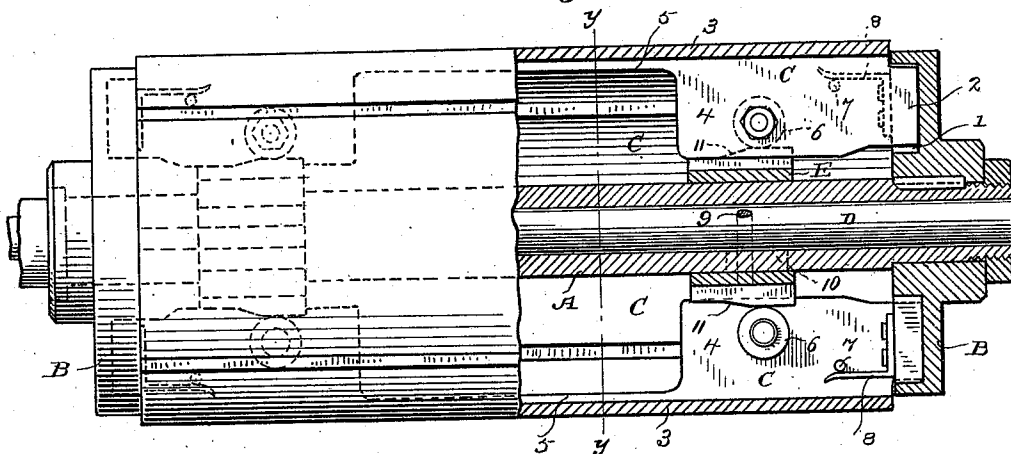


Fig. 2.

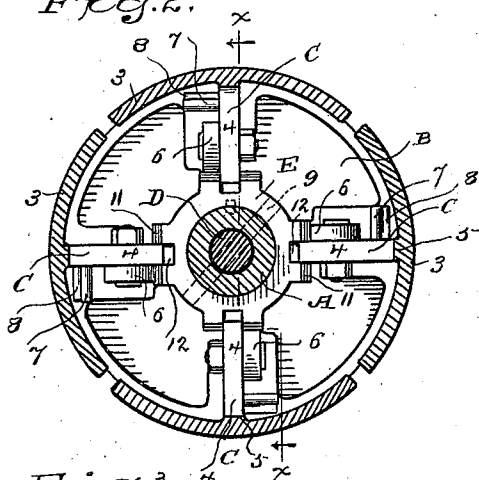


Fig. 5.

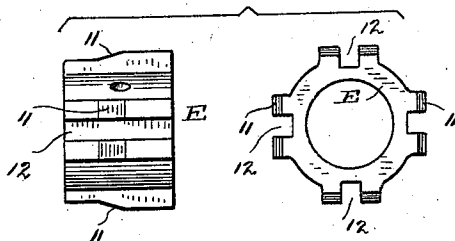


Fig. 3.

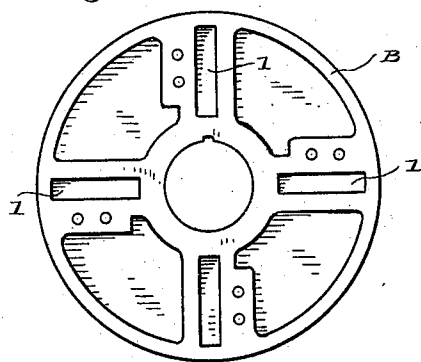
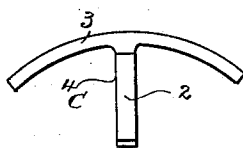


Fig. 4.



WITNESSES

H. A. Lamb.

L. G. Inswell

INVENTOR

Abel Kenworthy
By A. M. Wooster atty.

UNITED STATES PATENT OFFICE.

ABEL KENWORTHY, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE
BENEDICT & BURNHAM MANUFACTURING COMPANY, OF SAME PLACE.

EXPANSIBLE DRUM FOR COILING SHEET METAL.

SPECIFICATION forming part of Letters Patent No. 576,677, dated February 9, 1897.

Application filed October 10, 1896. Serial No. 608,449. (No model.)

To all whom it may concern:

Be it known that I, ABEL KENWORTHY, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Expansible Drums for Coiling Sheet Metal; 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.

My invention has for its object to produce a simple, inexpensive, durable, and easily-operated expansible drum which shall be adapted for general use and especially adapted for use in coiling sheet metal.

With these ends in view I have devised the novel construction of which the following description, in connection with the accompanying drawings, is a specification, letters and numbers being used to designate the several parts.

Figure 1 is a view, partly in elevation and partly in section, on the line $x x$ in Fig. 2, clearly illustrating the construction of my novel drum; Fig. 2, a section on the line $y y$ in Fig. 1; Fig. 3, a view of the inner face of one of the end pieces of the drum; Fig. 4, an end view of one of the movable sections, and Fig. 5 is a side and end view of one of the hubs detached.

The several parts comprising my novel drum are carried by a sleeve A, to which the end pieces B of the drum are rigidly secured in any suitable manner. These end pieces are provided with recesses 1, which receive the ends 2 of the radial plates of the movable sections C. The outer surface of each of these sections is an arc-shaped plate 3, which extends from end piece to end piece. At the center of each plate and extending inward radially is a plate 4, which I have shown as cut away at the center, as at 5. Each of these radial plates carries near each end a roller 6 and a pin 7. These pins are engaged by springs 8, the action of which is to move the sections inward and hold them at their retracted position. Each of the springs 8 has a base-plate at a right angle thereto, (see Fig.

1,) said base-plate having two screws passing through it and into holes in the end pieces B at one side of a recess 1. (See Fig. 3.)

D denotes a shaft lying within the sleeve and adapted to be moved longitudinally therein, and E denotes hubs lying outside of the sleeve and rigidly secured to the shaft by pins 9, which pass through slots 10 in the sleeve (see dotted lines, Fig. 1) and through the shaft. The length of the slots 10 is indicated by dotted lines in Fig. 1. The line of section on which Fig. 1 is drawn is such that the slot would not be represented by full lines. These hubs are provided with inclines 11, which are engaged by the rollers and act to move the sections outward against the power of the springs when the hubs are moved in one direction, and with slots 12, which receive the radial plates 4. It will be seen, therefore, that rotation of the shaft must necessarily carry the sleeve, hubs, and movable sections also, and that as pins 9 pass through slots in the sleeve longitudinal movement of the shaft will carry the hubs also and will move the sections in or out, as may be required. In the drawings I have shown the movable sections in the expanded position, that is to say, rollers 6 have passed up the inclines and rest upon the high portions of the hubs and hold the movable sections in the expanded position against the power of the springs. Suppose now that it is desired to contract the drum. The shaft is moved toward the right, as seen in the drawings, causing the rollers to pass down the inclines and permitting the springs to move the sections inward to the retracted position.

The special mode in which longitudinal movement is imparted to the shaft is not of the essence of my invention and is therefore not described in this specification. It is sufficient for the purposes of my invention that longitudinal movement be imparted to the shaft in any ordinary or preferred manner.

In use the drum is expanded before metal is wound thereon. After the coil is wound the operator moves the sections to the retracted position, which enables him to remove the coil instantly, thus doing away with the

necessity for partially uncoiling the coil of metal in order to remove it from the drum, as is necessary where ordinary drums are used.

Owing to the fact that the arc-shaped plates
5 extend from end to end of the drum they are
thereby adapted to equally support all por-
tions of a coil without regard to differences
in the length of said coil due to the winding
thereon of different widths of sheet metal.
10 Having thus described my invention, I
claim—

1. An expansible and rotatable drum com-
prising movable sections whose outer surfaces
consist of arc-shaped plates extending from
15 end to end of the drum, longitudinally-mov-
able hubs provided with inclines which en-
gage the sections and move them outward
when moved in one direction and springs
which move the sections inward when the
20 hubs are moved in the opposite direction, a
rotatable shaft, and means supported by said
shaft for rotating and for guiding the plates
in radial directions.

2. An expansible and rotatable drum com-
25 prising movable sections whose outer surfaces
consist of arc-shaped plates extending from
end to end of the drum and at the centers of
which are inwardly-extending radial plates,
rollers carried by said radial plates, longitu-
30 dinally-movable hubs having inclines which
are engaged by the rollers and move the sec-
tions outward when the hubs are moved in
one direction and springs which move the
sections inward when the hubs are moved in
35 the opposite direction, a rotatable shaft, and
means supported by said shaft for rotating
and for guiding the plates in their radial
movements.

3. An expansible and rotatable drum com-
40 prising movable sections whose outer surfaces
consist of arc-shaped plates extending from
end to end of the drum and at the center of
which are inwardly-extending radial plates,
a rotatable shaft by which the drum is car-
45 ried and which is adapted to be moved lon-
gitudinally, inclines carried by said shaft
which engage the radial plates and move the
sections outward when the shaft is moved lon-
gitudinally in one direction, springs which
50 move the sections inward when the shaft is

moved longitudinally in the opposite direc-
tion, and end plates supported by said shaft
and having means for guiding the plates in
their radial movements.

4. An expansible and rotatable drum com- 55
prising movable sections whose outer surfaces
consist of arc-shaped plates extending from
end to end of the drum and at the center of
which are inwardly-extending radial plates,
a sleeve by which the drum is carried, a shaft 60
adapted to be moved longitudinally, within
said sleeve rollers carried by the radial plates,
inclines movable along said sleeve which are
engaged by the rollers to move the sections
outward when the shaft is moved longitudi- 65
nally in one direction, springs which move
the sections inward when the shaft is moved
longitudinally in the opposite direction, and
connections between said shaft and inclines
whereby the latter are moved by the former. 70

5. An expansible drum comprising movable
sections whose outer surfaces consist of arc-
shaped plates at the center of which are in-
wardly-extending radial plates, a shaft by
75 which the drum is carried and which is adapt-
ed to be moved longitudinally, rollers carried
by the radial plates, hubs rigidly secured to
the shaft and provided with grooves which
receive the radial plates and with inclines
80 which are engaged by the rollers for the pur-
pose set forth and springs which move the
sections inward as the rollers pass down the
inclines.

6. An expansible drum comprising a sleeve
having slots 10, end pieces secured to the said 85
sleeve and provided with recesses 1, movable
sections whose outer surfaces consist of arc-
shaped plates at the center of which are in-
wardly-extending radial plates the ends of
which engage the recesses, longitudinally- 90
movable hubs having inclines which are en-
gaged by the radial plates and move the lat-
ter outward and springs which act to move
the sections inward.

In testimony whereof I affix my signature 95
in presence of two witnesses.

ABEL KENWORTHY.

Witnesses:

A. M. WOOSTER,
SUSAN V. HELEY.