E. W. HÖFLE.

MACHINE FOR MAKING INSULATING TUBES.

APPLICATION FILED JAN. 7, 1911.

1,008,149. Patented Nov. 7, 1911.

Fig. 1.

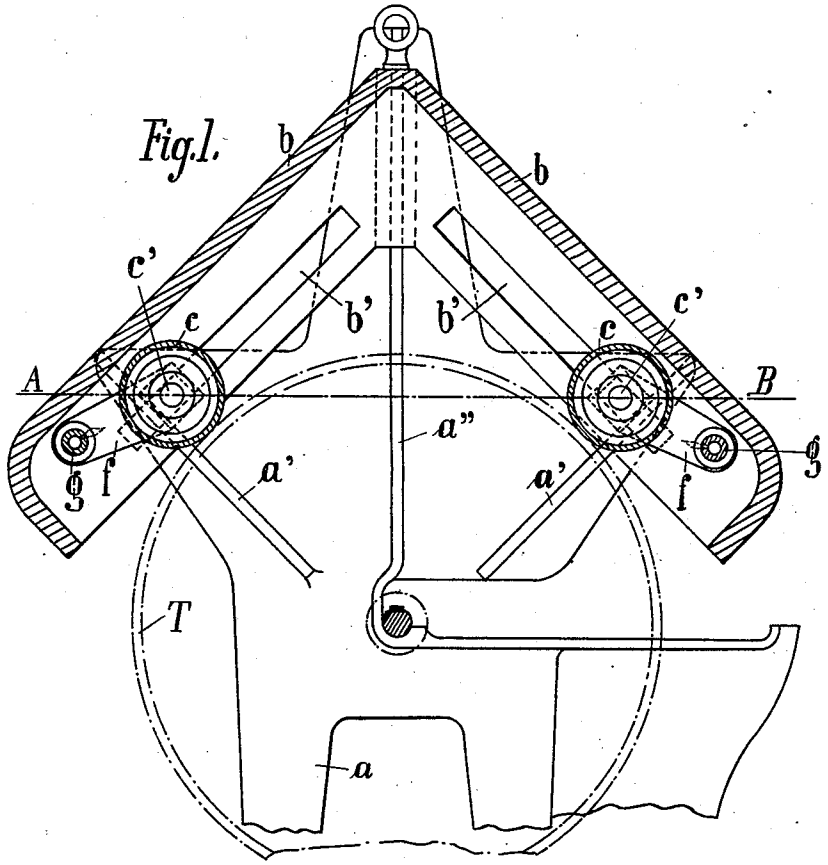
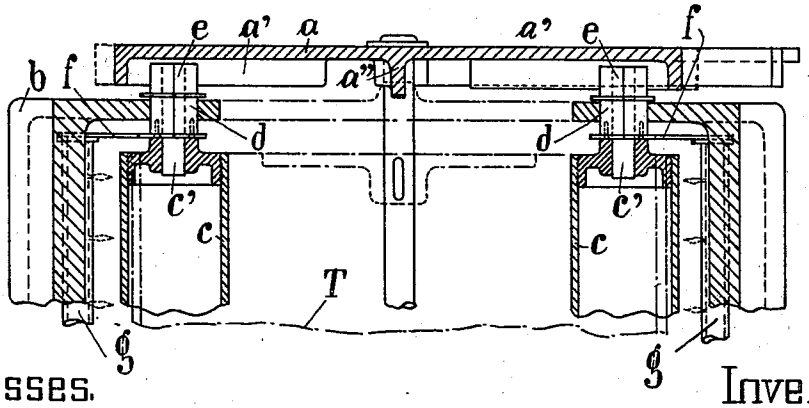


Fig. 2.



Witnesses.

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MACHINE FOR MAKING INSULATING-TUBES.

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To all whom it may concern:

Be it known that I, ERNST W. HÖFLE, a subject of the German Emperor, and residing at Basel, Switzerland, have invented certain new and useful Improvements in Machines for Making Insulating-Tubes, of which the following is a specification.

My invention relates to machines for making insulating tubes.

Various types of machines for manufacturing insulating tubes are well-known, in which the insulating material is pressed, while it is being wound, either by means of press rolls or by means of a heated angular press-cheek arranged movable vertically over a winding drum. The latter device is preferable to the former with regard to its mode of operation and manipulation, because insulating tubes of all diameters, *e. g.* from 60 to 800 mm. can be made on it with the same press-cheek without any other manipulation except the exchange of the winding drum being necessary. As will be readily understood and as has been found in practice, this known arrangement has the defect that the pressure of the angular press-cheek on the insulating tube which is being wound may only be small, in order to prevent the insulating material being torn in consequence of the resistance produced by the sliding friction. It is therefore impossible to employ thin insulating material for winding the tubes. When the pressure is small, however, it is not easy to wind the proper amount of material, and it frequently happens that in consequence of the formation of folds the insulating material is torn.

A primary object of my invention is to provide apparatus, to which these defects are not attached. To this end, in my apparatus, the insulating material which is to be wound is not brought into direct contact with an angular press-cheek acting on it, but the pressure is imparted to it by means of two heated press-rolls which adjust themselves automatically at an angle of 90° to one another on the periphery of the winding drum, whatever the diameter of the latter may be, and are journaled displaceably in a sleeper or press-cheek arranged vertically movable above the winding drum. Consequently, it is possible to regulate the pressure on the insulating material to any desired amount without exposing the insullation to the danger of rupture, so that the tubes can be wound completely without folds even with thin insulating material.

One illustrative embodiment of my invention is represented by way of example in the accompanying drawing, wherein:—

Figure 1 is a cross-section through my improved apparatus, and Fig. 2 is a horizontal section taken on the line A—B in Fig. 1.

Referring to the drawing, a winding drum T of known kind used for manufacturing insulating tubes is removably journaled in two pedestals or floor-frames *a*. These floor-frames have three ribs *a'*, *a'*, *a''* directed toward the inside of the machine, of which the two first are at an angle of 45° to the vertical rib *a''* and form a right angle, whose apex is at the center of the drum T. An angular sleeper or press-cheek *b* extending the entire length of the machine is vertically movable over the drum T and guided by the rib *a''*. Two guide slots *b'* at right angles to one another forming a rectangular guide-way are provided in each end of the press-cheek *b* and serve for displaceably journaling the press-rolls *c* revoluble about pivots *c'*. Two guide blocks *d* and *e* of which the former slides in the slot *b'* and the latter on the rib *a'* are provided loose on each of the pivots *c'* of the press-rolls *c*. These press-rolls can be heated by means of burners *g* which are carried at each end by an arm *f* attached to the guide-block *d*. As the press-rolls are constantly rotating during the winding operation they are heated uniformly all around, and the radiated heat, which is distributed more or less uniformly in the space within the press-cheek or sleeper is largely retained therein, so that less intensive heating is requisite.

The sleeper or press-cheek *b* is preferably suspended from pulley blocks and when winding is to take place is let down onto the drum T driven in any suitable manner. When elevating the sleeper or press-cheek *b*, *e. g.* when exchanging a drum, the press-rolls *c* slide downward, in consequence of their own weight, in the slots *b'* and consequently move apart, while, when descending, the guide blocks *d* are shifted by the ribs *a'* and the press-rolls are gradually caused to approach one another, in consequence of their rising in the slots *b'*, but always contact with the periphery of the drum at points whose radii form a right angle one with the other. The press-rolls are automatically placed into this position,

which is not only the most suitable for the complete winding of the insulating tubes, whatever the width of the winding drum may be, but also admits of the manufacture of insulating tubes of various diameter on the same machine by simply exchanging the drum even when thin weak insulating material is employed.

I claim:—

1. In a machine of the type described for winding insulating tubes, the combination, with a winding drum, of two floor-frames each having a vertical rib and two ribs at forty-five degrees relatively thereto, an angular sleeper arranged vertically movable over the drum, guided by the vertical ribs, and having a rectangular guide-way in each end, and two press-rolls displaceably journaled in the guide-ways and normally resting against the latter ribs.

2. In a machine of the type described for winding insulating tubes, the combination, with a winding drum, of two floor-frames each having a vertical rib and two ribs at forty-five degrees relatively thereto, an angular sleeper arranged vertically movable over the drum, guided by the vertical ribs, and having a rectangular guide-way in each end, guide-blocks movable against the latter ribs, two guide-blocks movable in each guide-way, two press-rolls each having two pivots, each pivot being journaled in one of the former and in one of the latter guide-blocks, arms attached to the latter guide-blocks, and two burners arranged parallel to the press-rolls carried by said arms.

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