No. 877,037. PATENTED JAN. 21, 1908.

L. BERNARD.

APPARATUS FOR IMPREGNATING FIRE IGNITERS.

APPLICATION FILED APR. 2, 1907.

2 SHEETS—SHEET 1.

Fig. 1

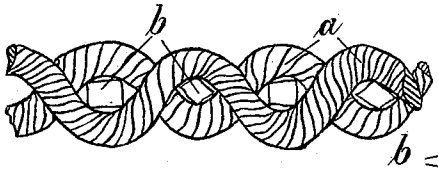


Fig. 2

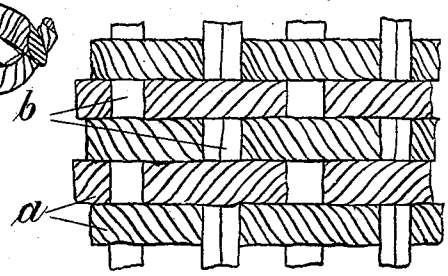


Fig. 3

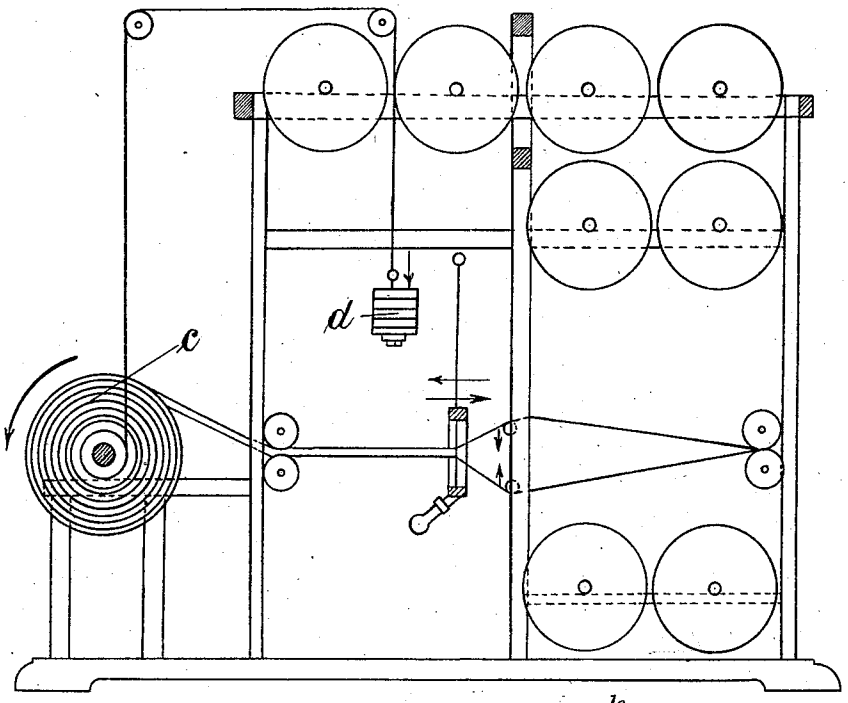
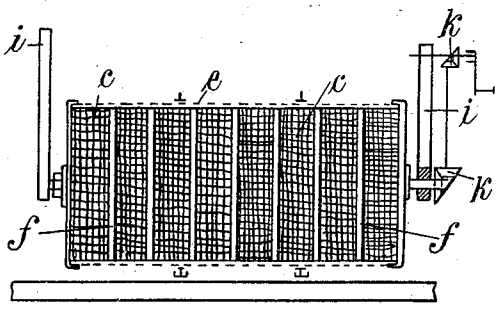


Fig. 4



Witnesses:
Carl Tuves
Jak. Traber.

Inventors:
Ludwig Bernard

THE NORRIS PETERS CO., WASHINGTON, D. C.

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2 SHEETS—SHEET 2.

Fig. 5

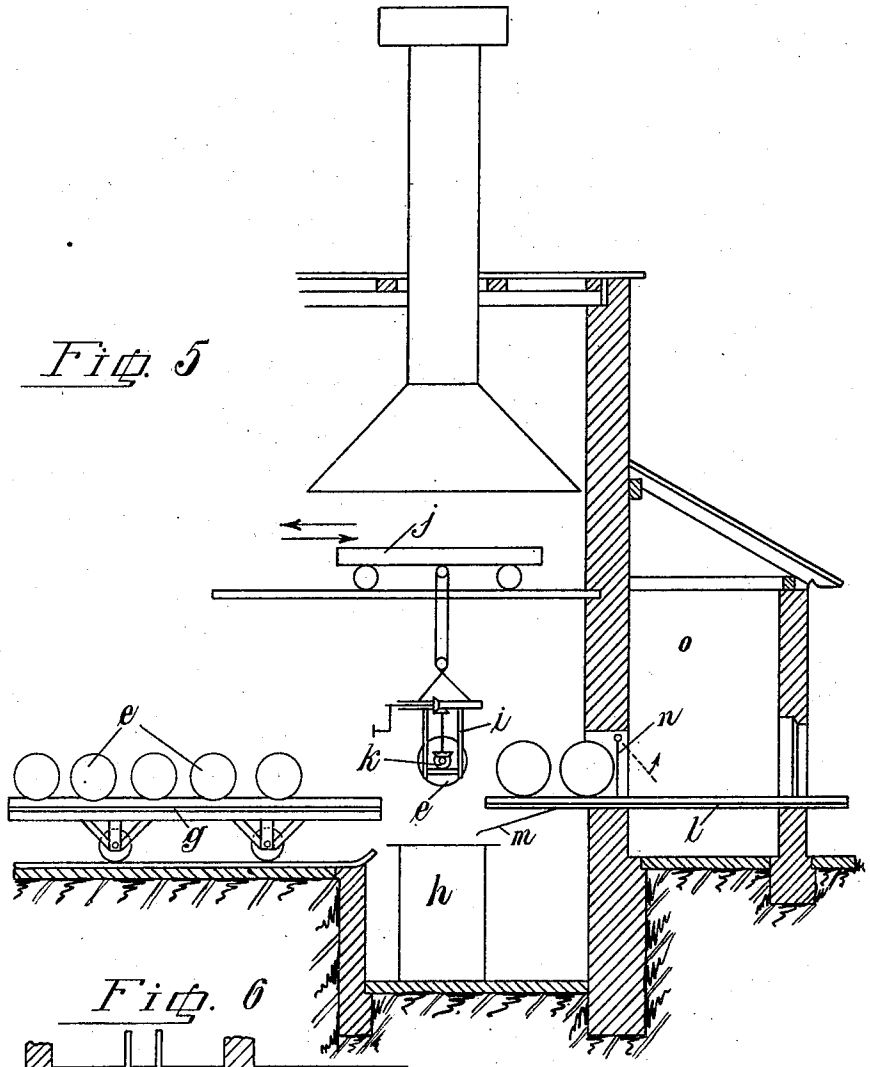


Fig. 6

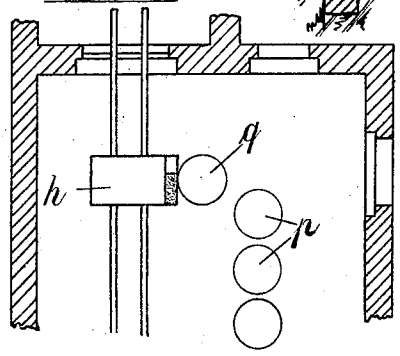
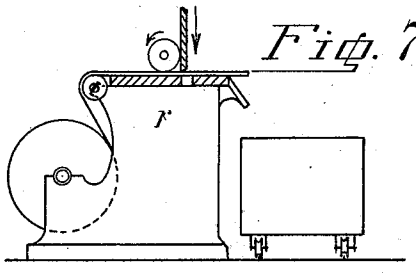


Fig. 7



Witnesses:
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LUDWIG BERNARD, OF PRAGUE, AUSTRIA-HUNGARY.

APPARATUS FOR IMPREGNATING FIRE-IGNITERS.

No. 877,037. Specification of Letters Patent. Patented Jan. 21, 1908.

Application filed April 2, 1907. Serial No. 366,051.

To all whom it may concern:

Be it known that I, LUDWIG BERNARD, subject of the Emperor of Austria-Hungary, and resident of Prague, Bohemia, Austria-Hungary, have invented an Improved Apparatus for Impregnating Fire-Igniters, of which the following is a specification.

The object of the present invention is an apparatus for impregnating fire igniters and to make the fire igniters as porous as possible, so that the air required for combustion has a free access.

In the present invention the fire igniter is made of flock or such like rope, and possesses a great many advantages, in that it makes the fire igniter simple and cheap, suitable for all purposes and shuts out all danger of fire.

In the annexed drawing is shown the fire igniter, as also examples of its construction, and impregnation device.

Figures 1 and 2 show different views of the fire igniter. Fig. 3 shows a mechanical working spinning device. Fig. 4 shows an impregnation basket. Fig. 5 shows a section through an impregnation plant. Fig. 6 shows the same in plan. Fig. 7 shows a device for cutting the single woven pieces.

For producing the fire igniter, Figs. 1 and 2, a strong rope *a* of flock, straw or some other such vegetable matter is used which is twisted together by means of the mechanical spinning device shown in Fig. 3. The thread of the weft yarn can be replaced by the pieces of wood *b*. The pieces of wood are pushed between the single ropes from one side. The finished band is rolled up on a roller *c* which for simplicity, is turned by the weight *d*.

The single bands can be of any width and can afterwards be cut to any required length. The finished rolls *c* are then placed into a cylindrical perforated basket *e*, Fig. 4, and separated by means of the thin sheaves *f*. In these baskets the rolls are now impregnated. For this purpose a great number of baskets *e* are placed on a truck *g*, Fig. 5, and brought near the boiler *h* containing the fluid impregnation mass. The first basket is then lifted by means of the impregnation device *i* hanging on the traveler *j* above the boiler *h*. The basket together with the impregnation device is then dipped into the fluid impregnation mass. By means of the bevel wheels *k*, the basket is turned about its horizontal axis a few times, so that the whole of its contents become equally impregnated, which with the devices used up to the present, in which the basket is simply dipped in, is practically not the case. By means of impregnation, the basket is again raised. When the basket has reached its highest position the truck is moved forward so far that its end is under the basket. The basket is then let down on the truck and the impregnation device detached. While the superabundant impregnation mass flows back into the boiler, the next basket is raised and is moved forward by means of the traveler *f*. This basket then pushes the already impregnated basket further along the truck *g* on the rails *l*. While the truck is pushed back, the fresh basket is in a similar manner to the first one dipped into the impregnation bath. The pitch still flowing from the first basket is led down a slanting plane *m* back into the boiler. After the dipping, the basket is again raised, and the truck *g* again brought forward and the above occurrence is again repeated.

By each fresh impregnated basket, the previous ones are pushed further along the rails *l*, so that the first and the successive baskets are pushed through a closing door *n* into a cooling chamber. To keep the impregnation bath always of the same quality and at the same level, the pitch or some such substance is melted in one or more boilers *p* (Fig. 6), and in another boiler *q* kept at the required thickness. From this boiler the mass is brought into the boiler *h* through a funnel when required. After they have been completely cooled, the separate rolls are taken out of the baskets and by means of a cutting device cut into pieces of the required length and breadth. These short pieces are then wrapped in thin paper and five or ten or more are packed together and so brought on the market.

As large openings are left between the ropes or between the ropes and pieces of wood, the air has free access from all sides, so that the whole fire igniter commences at once to burn and the flames thereof quickly ignite the coals. The single igniters may easily be pulled into more parts as namely one, two or more ropes *a* may easily be slipped off the pieces of wood. In consequence of this, there is a greater economy by using these fire igniters than with others which are mostly in the form of briquets or

bundles or also in the form of pieces of rope which have been dipped in resin or some such substance and wrapped in paper.

Having fully described my invention, what I claim and desire to secure by Letters Patent is:

An apparatus for impregnating fire igniters in an impregnation fluid, comprising in combination, an impregnation basket, into which the various rolls of fire igniters are placed, separation sheaves for separating the said rolls inside the impregnation basket, and a bevel gear actuating the horizontal axis of the said impregnation basket, so that the latter is revolved inside the impregnation fluid, and thereby the rolls are entirely and equally covered with the impregnation fluid, substantially as described and shown and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

LUDWIG BERNARD.

Witnesses:
ADOLPH FISCHER,
ARTHUR SCHROEZ.