

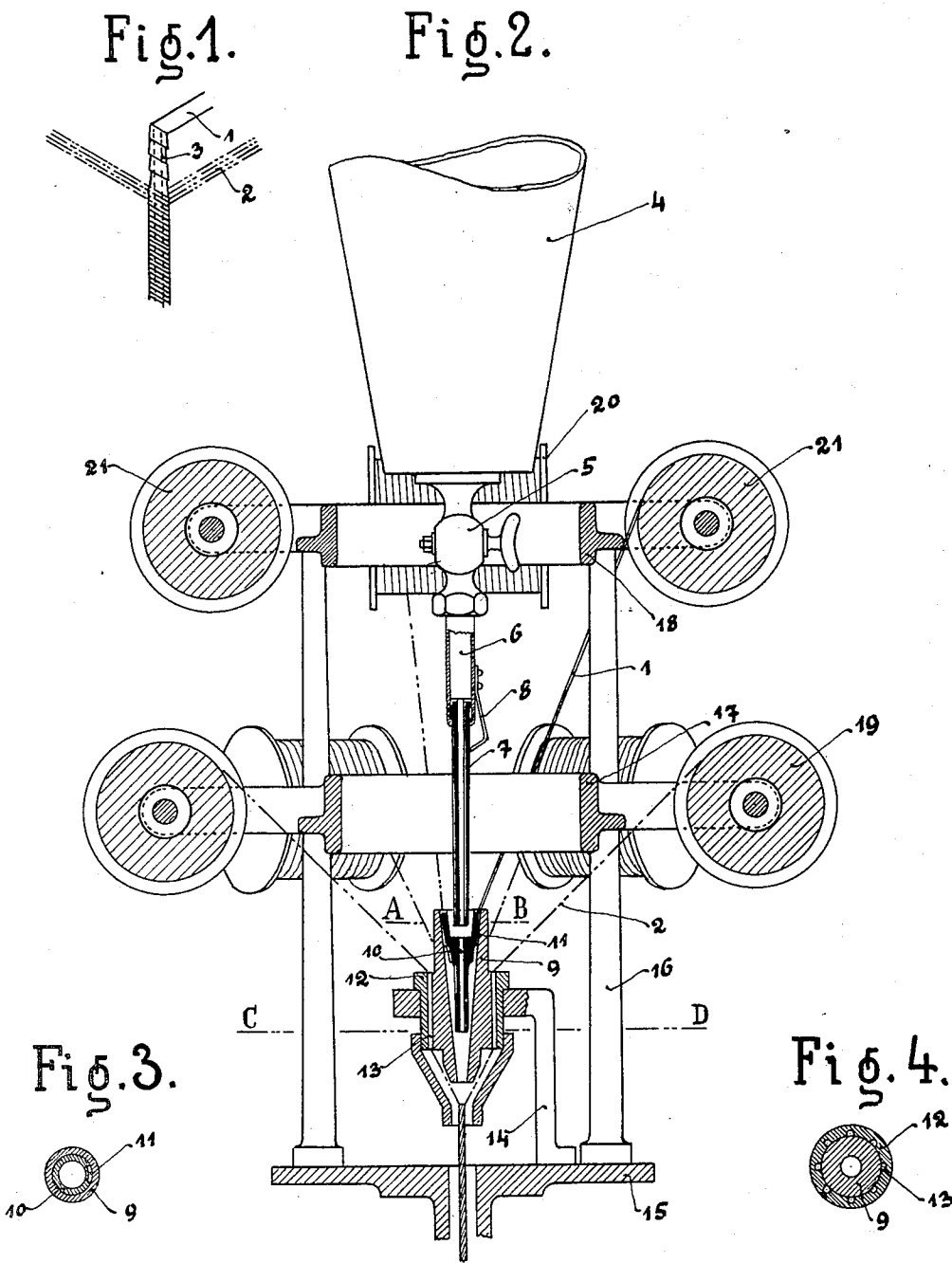
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F. WASMAYR

PROCESS AND MACHINE FOR MAKING FUSES

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UNITED STATES PATENT OFFICE.

FRANZ WASMAYR, OF WR. NEUSTADT, AUSTRIA.

PROCESS AND MACHINE FOR MAKING FUSES.

Application filed January 16, 1923. Serial No. 613,071.

To all whom it may concern:

Be it known that I, FRANZ WASMAYR, residing at Wr. Neustadt, Austria, have invented a certain new and useful Process and Machine for Making Fuses, of which the following is a specification.

My invention relates to a process of, and a machine for, manufacturing fuses. Fuses have heretofore been manufactured by feeding a strip of paper in a horizontal direction, and feeding the powder to it from a hopper, the edges of the strip being bent towards each other to form a tube, which is spun over with yarn. In manufacturing this kind of fuses it is exceedingly difficult to distribute the charge quite uniformly. In consequence of this gaps in the powder-core occasionally occur, which lead to unequal combustion and miss-fires. Besides this a comparatively large quantity of yarn is necessary to form a perfectly tight wrapper over the powder-core. Such fuses have also the disadvantage that they break when bent.

According to my invention these disadvantages are avoided.

The process which I adopt consists in forming a tube of a strip of paper, fed in a vertical direction, and causing a stream of powder running in the same direction to sink into this tube in the course of its production. The tube is spun over helically with thread or yarn, directly after the coiling of the paper into the tubular shape.

This process of manufacture has the advantage of securing completely uniform distribution of the charge, as the powder-column is surrounded by the paper-strip when it leaves the funnel in which the tube is found.

Unequal combustion and miss-fires are thus avoided and the quantity of powder can moreover be considerably reduced, without impairing in the least the effect. The spilling of powder on the machine is also prevented so, that the danger of fire is greatly diminished and the work is neater. By surrounding the powder-core by a paper-tube one can also obtain the desired result with a smaller quantity of yarn. While up to now ten yarn threads were required for wrapping up completely the powder-core, only eight threads are needed, with the new process.

A machine for carrying into effect the process according to my invention is illus-

trated in Figures 2—4 of the drawing and Fig. 2 shows a vertical section and the Figures 3 and 4 are cross-sections according to line A—B and line C—D of Fig. 2.

The machine comprises a powder-hopper 4 from the bottom of which leads a discharge tube 6 controlled by a cock 5. Within the tube 6 there is a telescopically slidable tube 7, held in position by a spring 8, which is fixed to the tube 6 and bears against the wall of the tube 7.

Under the feeding tube is a funnel 9, into which a small filler tube 10 is inserted. This is provided with a channel 11 for conducting the paper-strips into the funnel. This funnel is fitted into a short tube or socket 12, which has channels 13 for guiding the threads. The tube 12 is carried by a bracket 14 on a spinning plate 15. On the plate 15 are two superposed spool-holders 17, 18 resting on pillars 16. One of these spool-holders 17 has six yarn-spools 19 and the other 18 has two yarn-spools 20 and two paper-spools 21. Only one of the paper-spools is put in use while the other is kept in reserve.

From one of the spools 21 the paper-strip is conducted through the channel 11 into the funnel 9 and guided on its inner surface.

When the spinning-plate revolves the paper-strip is wound around the powder-core, before it is accessible to the threads as these threads are conducted through the channels 13 to the cord formed by the paper-strip and do not reach it till it has left the funnel. The adjustability of the tube 7 enables it to be accurately set for feeding the powder to the filler tube and also enables the latter to be inserted into the funnel. There may be a plurality of channels 11, for lapping with two or more strips.

What I claim is:

1. The process of manufacturing a fuse, which consists in forming a vertical tube by helically coiling a strip of paper, causing a vertical stream of powder to sink into this tube concurrently with the coiling of the paper, and spinning filament round the tube concurrently with the coiling and directly below the part last coiled.

2. In a fuse making machine the combination of a funnel, a filler tube within the wider part of said funnel, there being a clearance between said tube and the inner surface of the funnel, means for feeding combustible powder through said filler tube

into the funnel, means for feeding a strip of fabric between said tube and the inner surface of said funnel, and lapping said strip round the powder issuing from said tube, and means for spinning thread round the lapped strip of fabric.

3. In a fuse making machine the combination of a funnel, a filler tube within the wider part of said funnel, there being a clearance between said tube and the inner surface of the funnel, means for feeding combustible powder through said filler tube into the funnel, means for feeding a strip of fabric between said tube and the inner surface of said funnel, and lapping said strip round the powder issuing from said tube, a socket embracing said funnel and having channels for guiding threads, and means for feeding thread through said channels, and spinning said threads round the lapped fabric issuing from said funnel.

4. In a fuse making machine the combination of a socket, a removable funnel in said socket, a filler tube within the wider part of said funnel, there being a clearance between said tube and the inner surface of the funnel, means for feeding combustible powder through said filler tube into the funnel, means for feeding a strip of fabric between said tube and the inner surface of the funnel, and lapping said strip round the powder issuing from said tube, and means for spinning thread round the lapped strip of fabric.

In witness whereof I have signed this specification in the presence of two witnesses.

WASMAYR, FRANZ.

Witnesses:

JOSEF KUTSCHERG,
HANS PAPPENHEIM.