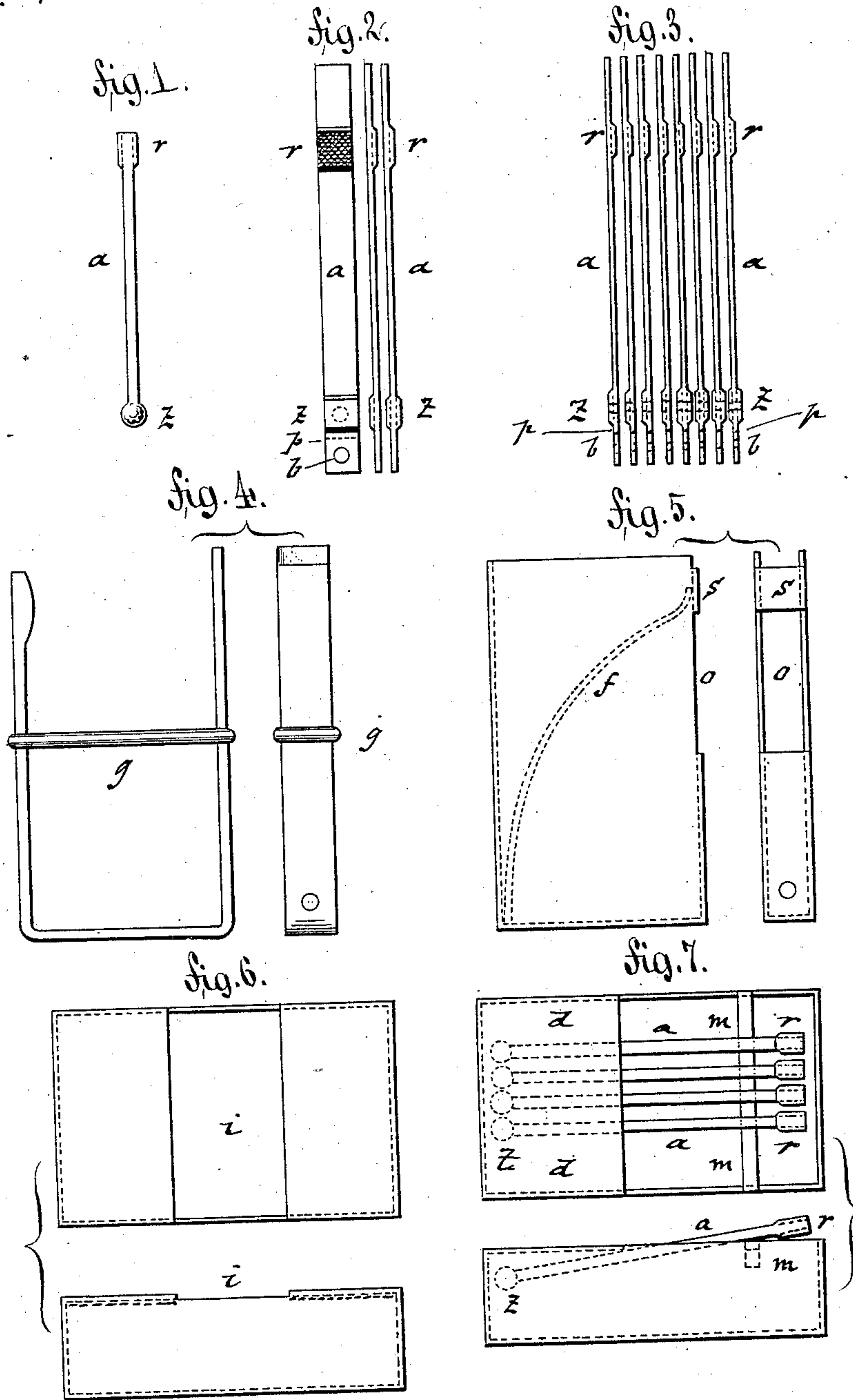


(No Model.)

F. GERKEN.
FRICTION MATCH.

Patented Sept. 25, 1883.

No. 285,610.



WITNESSES:

For W. Rosenbaum
Sidney Mann

INVENTOR

Franz Gerken
BY *Paul Goepfer*
ATTORNEY

UNITED STATES PATENT OFFICE.

FRANZ GERKEN, OF BERLIN, GERMANY, ASSIGNOR TO HIMSELF AND G.
GOLIASCH & CO., OF SAME PLACE.

FRICTION-MATCH.

SPECIFICATION forming part of Letters Patent No. 285,610, dated September 25, 1883.

Application filed March 15, 1883. (No model.)

To all whom it may concern:

Be it known that I, FRANZ GERKEN, a subject of the King of Prussia, German Empire, residing at the city of Berlin, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Matches, of which the following is a specification.

This invention has reference to the manufacture of matches that can be readily carried in the pocket and lighted without a separate frictional surface; and the invention consists of matches made of strips of paper or other suitable material, provided at one side and near one end thereof with a fulminate, and at the other side and end with a frictional surface, the strips being combined into blocks of suitable shape, from which they are torn off, and at the same time ignited.

In the accompanying drawings, Figures 1, 2, and 3 represent different forms of my improved match, and Figs. 4, 5, 6, and 7 represent different packages or boxes by which the matches are packed for use.

Similar letters of reference indicate corresponding parts.

My improved matches are made of strips or splints *a a*, of paper, wood, or other suitable material, of square or oblong cross-section, and provided at or near one end with suitable fulminating compound, *z*, and at or near the other end with a frictional surface, *r*, as shown in Fig. 1. The strip or splint *a* may also be provided at both sides with a fulminating compound, and at the upper end and one side thereof with a frictional surface, as shown on the right-hand side of Figs. 2 and 3. Below the part of the strip *a* covered with the fulminate *z* the strip is perforated at *p*, as shown in Fig. 2, so as to facilitate the tearing off of the same. Below the perforation *p* the strip is provided with an opening, *b*, that is punched for the purpose of securing the strips by a suitable retaining-pin to the packages by which the strips or splints are carried in the pocket.

The matches are made up in blocks of suitable size, which are made up in suitable packages, so as to be conveniently carried in the pocket. They may also be pasted or other-

wise attached to the inclosing packages. The strips *a* are also perforated at that part which is covered by the fulminate *z*, so that when the latter is ignited the fire can pass through the hole and ignite the paper or wood from both sides. The fusee-strips are formed into a block in such a manner that the fulminate of one strip faces the frictional surface of the next adjoining strip, so that when any one is torn off and quickly pulled out from the block the fulminate will be ignited by the friction with the surface *r*.

The match-blocks may be inclosed simply by an exterior U-shaped band of pasteboard, that is applied to the block by a rubber band, *g*, as shown in Fig. 4, in which case the strip of pasteboard is made shorter than the fusees, so that their ends project above the same and can be readily pulled out. The package shown in Fig. 5 is made of sheet metal, and has at one side a narrow opening, *o*, for the escape of the vapors, and an interior spring, *f*, by which the frictional surfaces of the fusees are pressed together and against a transverse piece, *s*, at the open side of the casing. If the match next adjoining the piece *s* is quickly pulled out, so that it is torn off at *p*, the fulminate *z* is ignited by friction with the frictional surface of the next adjoining fusee.

In Figs. 6 and 7 a box with sliding drawer is shown, in which fusees of that shape shown in Fig. 1 are placed. The drawer is covered partly at that end above the fulminate-covered ends of the matches with stiff paper *d*, and provided below the opposite ends of the fusees with a transverse rubber strip, *m*, on which the matches rest. The rubber strip *m* presses the matches against the top of the box, the under side of which is provided with a frictional surface, as shown in Fig. 6. If one of the matches is partly drawn out of the box and the drawer closed again, and the match then quickly pulled out, the fulminate will be ignited by friction with the ends of the remaining fusees and with the under side of the top of the box. The opening *i* in the top of the box shown in Fig. 6 admits the escape of the vapors generated by the fulminate.

If desired, the matches may be impregnated at that part where the frictional surface is lo-

cated with a suitable substance that renders that part incombustible, while the remaining parts are treated with combustible material, so as to become more inflammable.

5 Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A match composed of a separate strip, having a fulminate at one side near one end, and a friction-surface on the opposite side
10 near the opposite end, substantially as described.

2. A match provided on one side with a fulminate and on the opposite side with a friction-surface, said match having a perforation
15 below the fulminate for the reception of a holding-rod, substantially as described.

3. A match provided with a fulminate on

one side, a frictional surface on the opposite side, and transverse perforations below the fulminate, substantially as described. 20

4. A match provided with a fulminate on one side, a frictional surface on the opposite side, a perforation below the fulminate, and a series of transverse perforations between said perforation and the fulminate, substantially as
25 described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANZ GERKEN.

Witnesses:

GERARD W. VON NAWROCKI,
B. ROY.