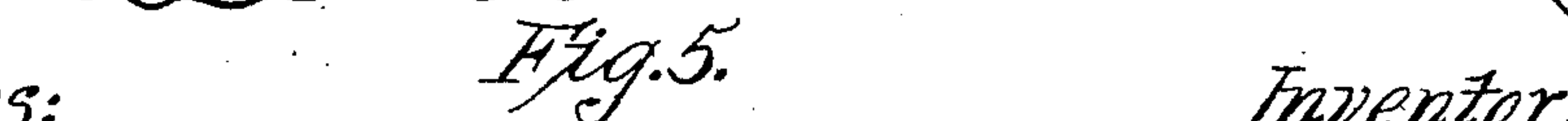
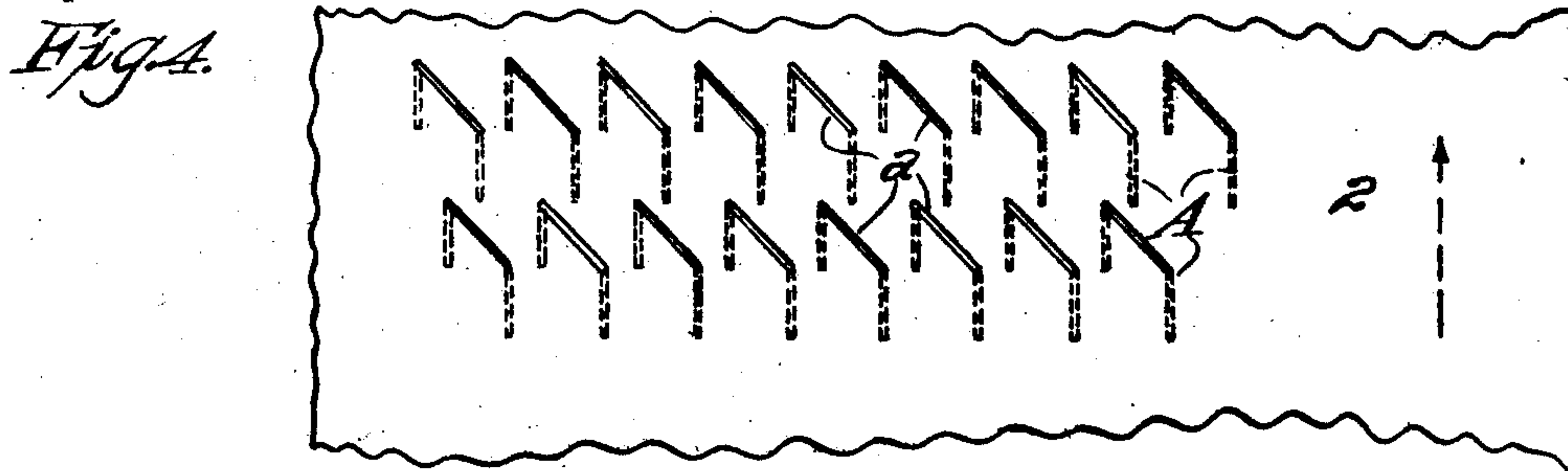
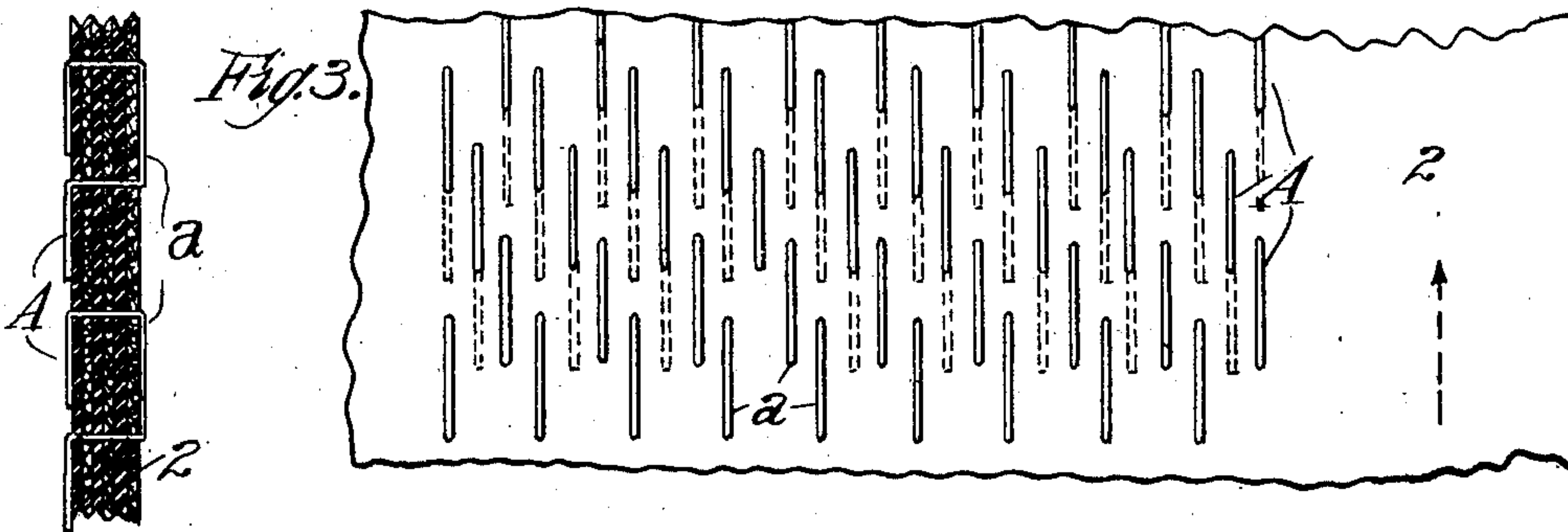
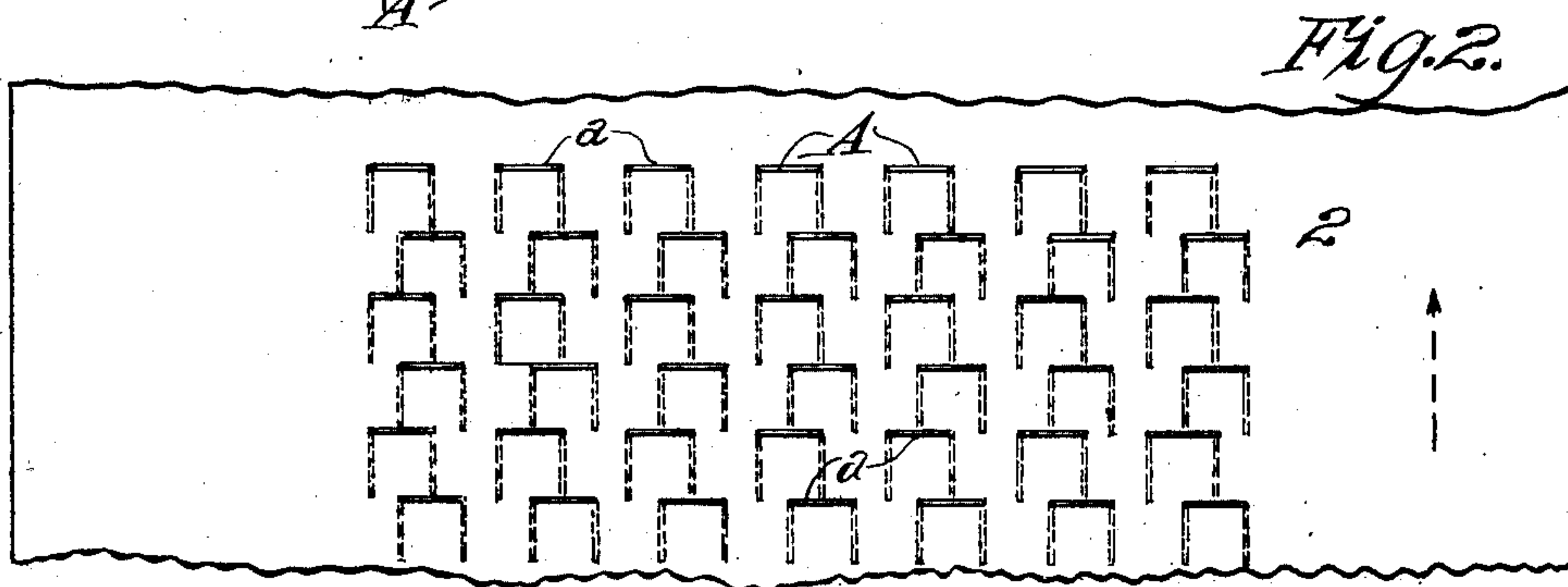
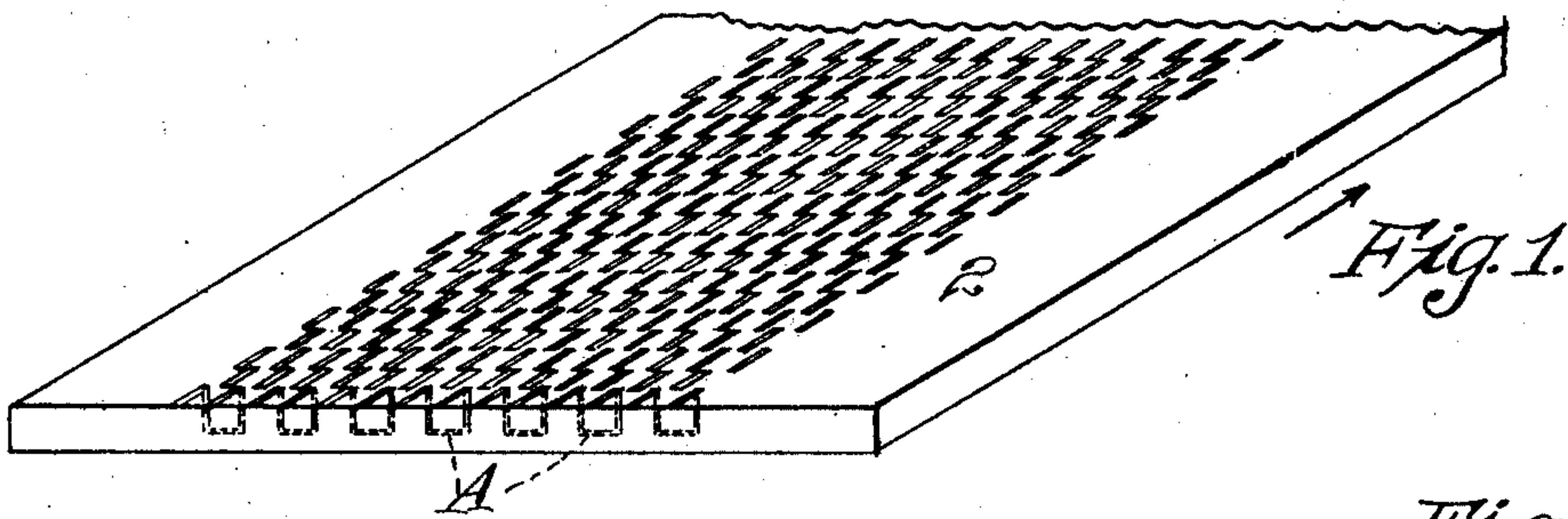


No. 829,579.

PATENTED AUG. 28, 1906.

E. B. FOLSOM.  
CONVEYER BELT.  
APPLICATION FILED APR. 5, 1906.



Witnesses:

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# UNITED STATES PATENT OFFICE.

ERNEST B. FOLSOM, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-HALF TO WARREN E. MURRAY, OF SAN FRANCISCO, CALIFORNIA.

## CONVEYER-BELT.

No. 829,579.

Specification of Letters Patent.

Patented Aug. 28, 1906.

Application filed April 5, 1906. Serial No. 310,019.

*To all whom it may concern:*

Be it known that I, ERNEST B. FOLSOM, a citizen of the United States, residing in the city and county of San Francisco and State of California, have invented new and useful Improvements in Conveyer-Belts, of which the following is a specification.

My invention relates to conveyer-belts such as are employed for handling tailings, coal, and other coarse granular abrasive material.

It is common on gold-dredgers and the like to employ rubber or fabric belts which are generally of a trough shape to carry the tailings. The material conveyed varies in size from the finest gravel to rocks weighing two hundred or three hundred pounds and includes stumps, old pieces of lumber, or anything else picked up by the shovels or buckets. The wear on these belts, and especially on the middle of a belt, is very great, and the life of a belt is seldom more than a few months. Since the belts usually are from twenty-four to forty inches in width, the expense of renewal is considerable.

The object of my invention is to provide a practical, durable, metal-armored belt at comparatively little if any additional expense over the present unprotected belt, and which armored belt will possess practically the same qualities of flexibility both transversely and longitudinally that the unprotected belts now have, but which will have the further advantage of stretching but little in the direction of its length or transversely.

While various forms of metal-armored belts have been tried in the past, they have not proven, as far as I know, unqualified successes for a variety of reasons.

My invention consists of the parts and the construction and the combination of parts, as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a plan view of the top of my belt. Figs. 2, 3, 5 represent modifications thereof viewed from the under side, showing manner of positioning the staples. Fig. 4 is a longitudinal section of the form shown in Fig. 3.

The present invention comprehends, essentially, the use of wire staples A, driven through the central portion of the belt 2, or the portion most subject to wear, and from

the under side of the belt and with the projecting ends bent back upon the top surface of the belt in a direction opposite to and parallel with the direction of travel of the belt.

The staples are made of suitable bendable wire, and when driven through the belt by suitable means their ends will project three-eighths of an inch, more or less, beyond the top surface of the belt. The staples are placed sufficiently close together so that the bent ends of the wires form a practically continuous metal surface. At the same time each wire being independent of every other wire is free to move and allow the belt to readily pass around its end rollers and to assume a trough shape, if concaved rollers are used or a trough-belt is desired. The bent horizontal portions of the staples form in the aggregate a continuous metal surface to receive the impact of and to support the material.

It is essential that the ends of the staples be laid down flat on the belt to prevent coarse gravel or sticks getting under the wires and wearing the belt. The ends of the wires are preferably not clenched, since the action is not as good. Bending the wires back in a reverse direction to the travel of the belt also tends to clear the wires always of any accumulations which they might otherwise gather.

The extent of the armored surface of the belt will depend on circumstances and on the particular use to which a particular belt is to be put. Usually it need not extend over more than half the width of the belt, since by far the greatest amount of wear comes on the middle of the belt. For instance, with a twenty-four inch belt the armored strip may be approximately fourteen inches. With a forty-inch belt the armored strip would be, say, twenty inches.

With a fabric belt of eight or ten ply, more or less, the staples may take the place of so much of the longitudinal stitching and so save expense in manufacture and really give a better belt, since the longitudinal stitches interfere somewhat with the driving of the staples.

The staples may be driven into the belt so that their heads *a* lie either transverse to the belt, as in Fig. 2, or parallel with the length of the belt, as in Fig. 3, or diagonal to the belt, as in Fig. 4.



The use of staples driven through the belt is important and is advantageous over other reinforcing means, since they provide not only the armored surface above described, but they operate to prevent the belt from stretching. A belt after a certain period of wear and use will stretch lengthwise and will correspondingly be contracted or narrowed transversely. By using staples and staggering them in the manner indicated in the drawings they interlock with the fabric and cooperate with each other in such a way that the warp and woof threads are bound and held against either lengthwise stretching or transverse contraction.

To illustrate, if the staples are driven with their heads crosswise of the belt, as in Figs. 1, 2, each staple straddles a certain number of lengthwise-running threads. A succeeding staple on either side of the first engages some of these same threads and other additional ones and all act like cooperating binders to prevent either expansion or contraction of the threads embraced. If the staples are driven with the heads running lengthwise of the belt, as in Fig. 3, they will embrace the transverse threads and prevent expansion of those threads. If the staple-heads are arranged diagonal to the belt, as in Fig. 4, each staple will embrace a certain number of lengthwise and crosswise threads.

This belt is advantageous in that it provides a metal surface which is an integral part of the belt. Where metal surfaces have heretofore been applied, they usually have had a tendency to creep or pull away from the belt.

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

1. A conveyer-belt having staples driven through it from the under side with the projecting ends of the staples bent backward on

top of the belt but not clenched, said bent ends providing a substantially continuous armored surface.

2. A conveyer-belt having staples driven through it from the under side with the projecting ends of the staples bent back flat upon the surface of the belt said flattened ends unclenched and forming in the aggregate a substantially continuous, flexible, protective, metallic armor.

3. A conveyer-belt having staples driven through it from the under side and along the central portion of the belt most subject to wear, said staples having their projecting legs bent downward onto the belt to afford a substantially continuous protective armor.

4. A conveyer-belt having staples driven through it with the projecting legs of the staples bent back to provide a substantially continuous protective armor.

5. A conveyer-belt having staples driven through it with the projecting legs of the staples bent back to provide a substantially continuous protective armor, said staples arranged with their heads diagonal to the belt to embrace both the warp and woof threads.

6. A conveyer-belt having wires driven through it from the under side, means to prevent the wires being drawn through the belt, and the projecting ends of the wires bent back flat onto the belt in the direction opposite to the travel of the belt, said bent ends constituting a substantially continuous protective armor.

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

ERNEST B. FOLSOM.

Witnesses:

S. H. NOURSE,  
D. B. RICHARDS.