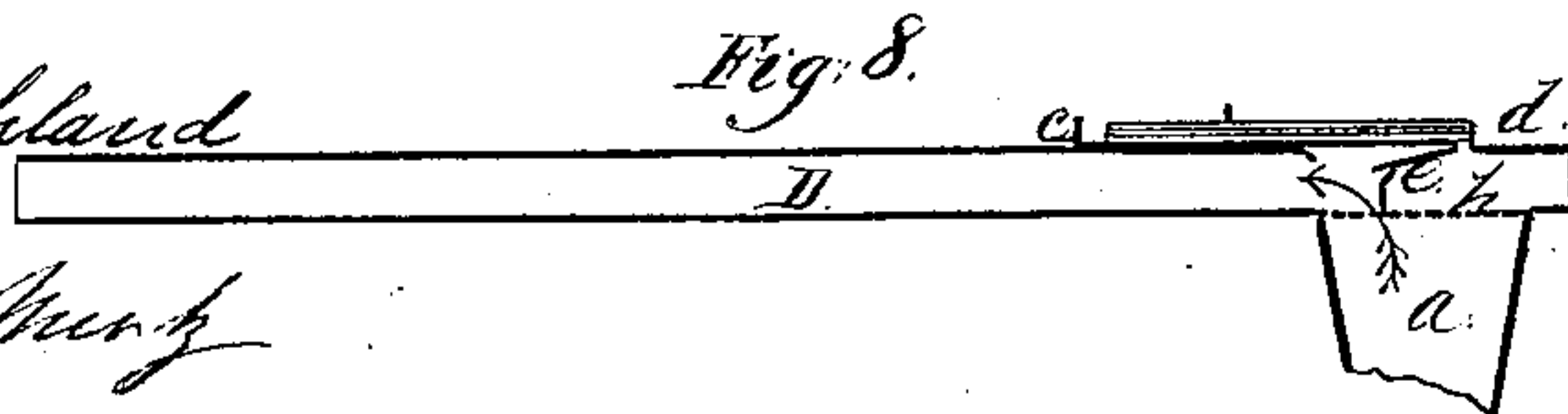
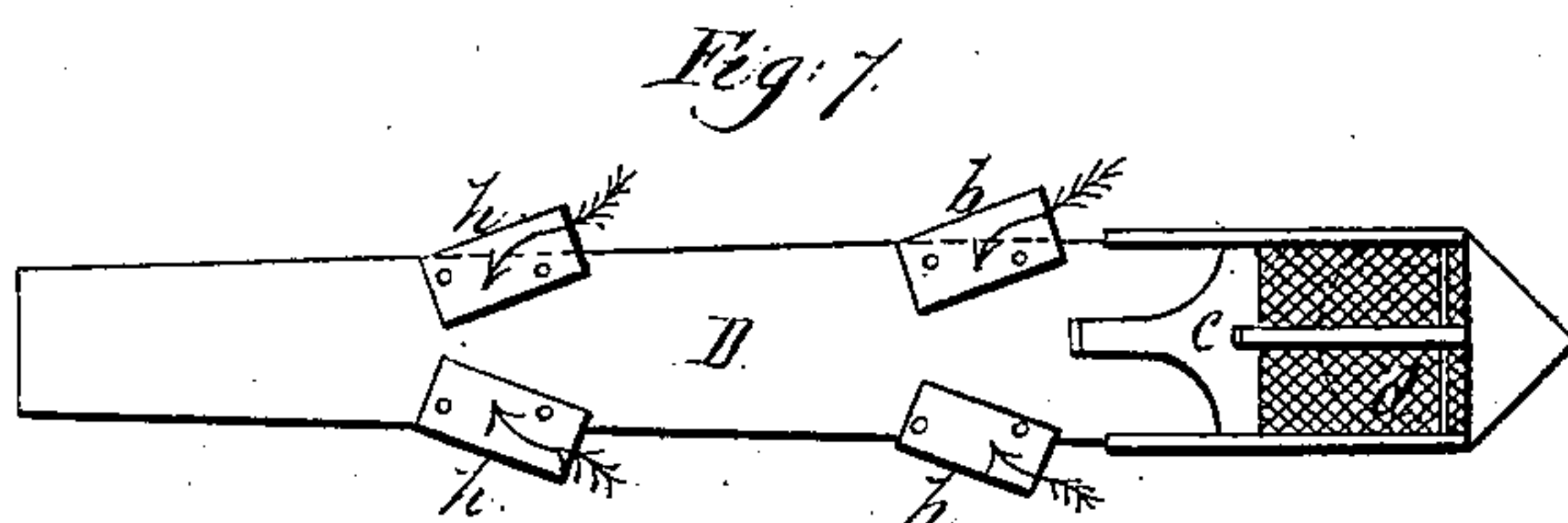
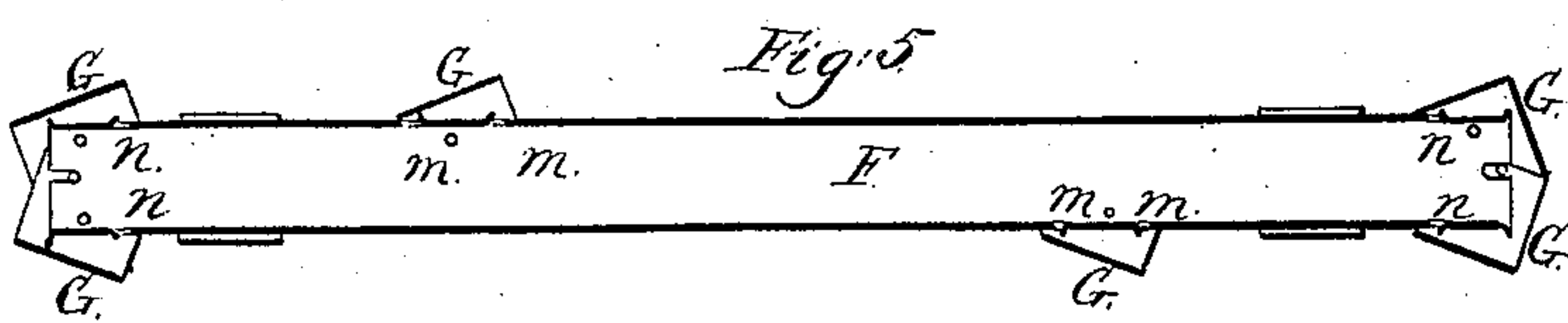
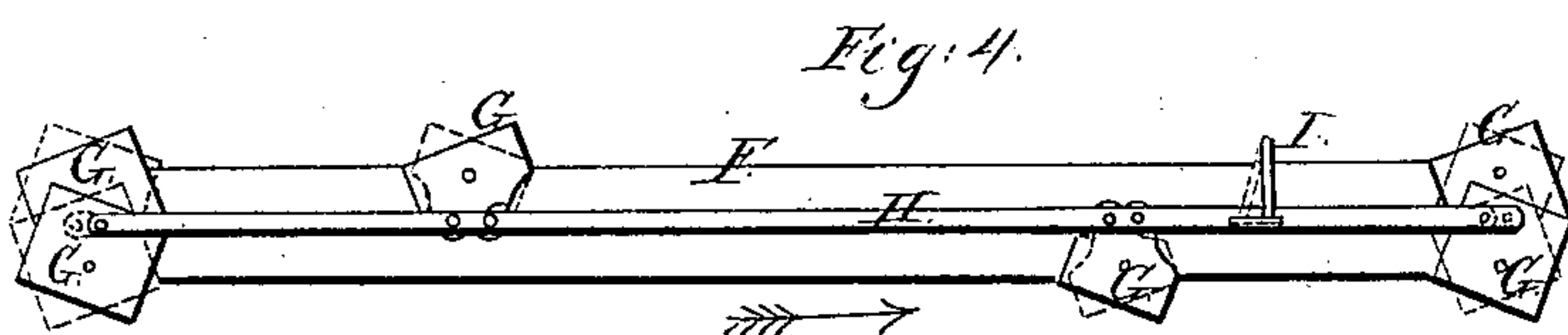
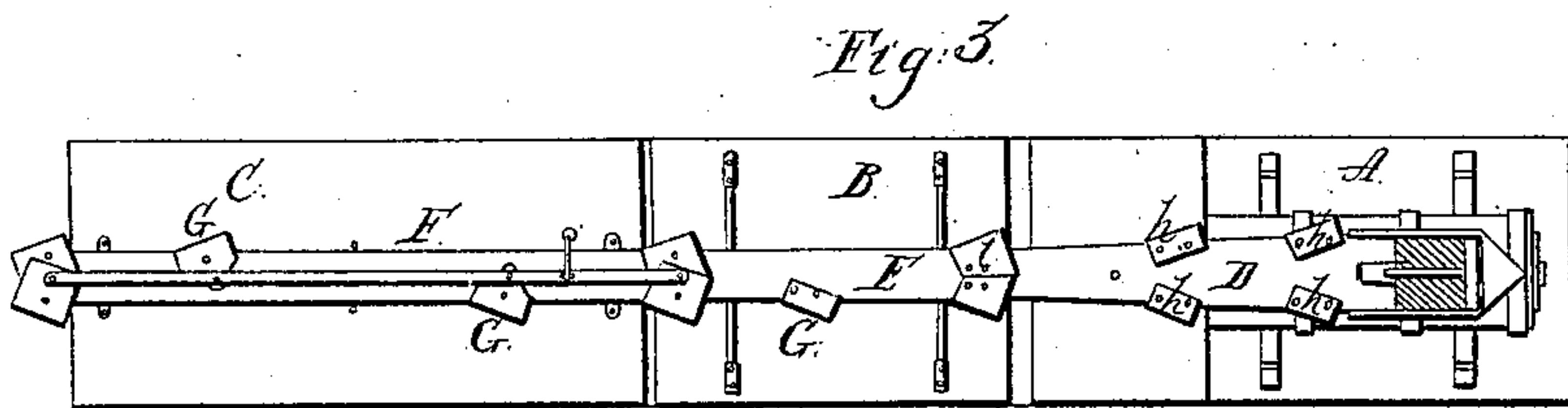
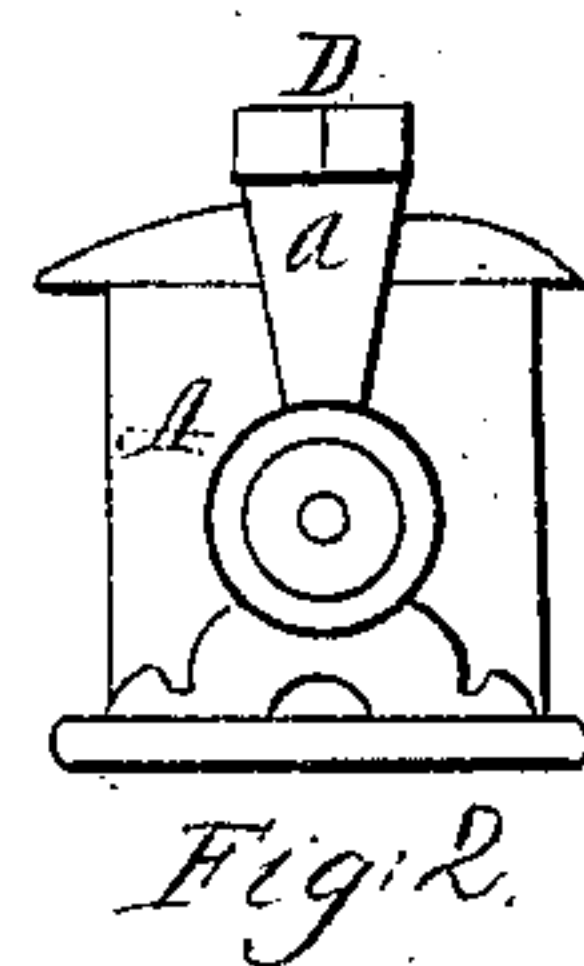
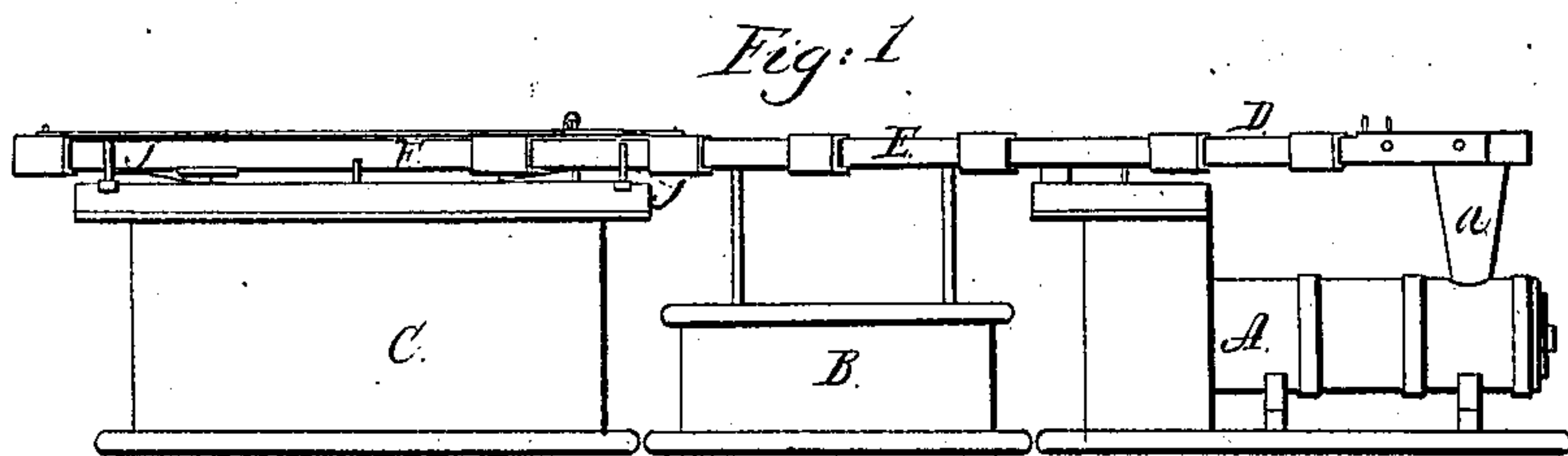


L. P. Teed,
Spark Arrester,
No 29,531, *Patented Aug. 7, 1860.*



Witnesses:
George J. Rohland
John A. Murphy

Inventor:
Lorenzo P. Teed

UNITED STATES PATENT OFFICE.

LORENZO P. TEED, OF WHITE DEER MILLS, PENNSYLVANIA.

ARRANGEMENT FOR DISPOSING OF SPARKS FROM LOCOMOTIVE-ENGINES.

Specification of Letters Patent No. 29,531, dated August 7, 1860.

To all whom it may concern:

Be it known that I, LORENZO P. TEED, of White Deer Mills, Union county, Pennsylvania, have invented a new and useful Improvement in Disposing of Sparks, &c., of Locomotive-Engines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

My invention relates to an improvement in the conducting tubes heretofore proposed for carrying off the sparks from the chimney of a locomotive, above the roof of the car to the rear of the train, and my improvement consists in a conducting pipe with openings and hinged shields connected to a bar for simultaneous movement, the whole being constructed and arranged on the top of a railway car and combined with a conducting pipe and chimney on the locomotive in the manner and for the purpose fully described hereafter.

In order to enable others to make and use my invention I will now proceed to describe its construction and operation.

On reference to the accompanying drawing which forms a part of this specification, Figure 1 represents (in outline) sufficient of a locomotive, tender and one car to illustrate my improved mode of disposing of the sparks of the locomotive; Fig. 2, an end view; Fig. 3, a plan view; Fig. 4, a plan of the conducting pipes connected to the car; Fig. 5, a sectional plan of Fig. 4; Fig. 6, a transverse section of Fig. 4; Fig. 7, a plan view of the conducting pipe connected to the locomotive, and Fig. 8, a vertical section of Fig. 7.

Similar letters refer to similar parts throughout the several views.

A, B, and C represent (in outline) the locomotive, tender, and first car of the train. To the top of the chimney *a* of the locomotive is secured one end of the conducting tube D, the opposite end being secured to the rear of the locomotive by any suitable attachments. The chimney is separated from the conducting pipe D by a perforated plate *b* or a plate of coarse wire gauze.

In the top of the conducting pipe is an opening which may be obstructed by a sliding door *c*, by a plate *d* of fine wire gauze, or the opening may by moving back both plate and gauze be entirely unobstructed. To the end of the door *c* and within the con-

ducting pipe is hung a valve *e* (Fig. 8) arranged to bear against a curved pin F projecting from the plate *b* so that when the door *c* is pushed over the opening on the top of the conducting pipe the valve *e* is raised leaving a free communication between the chimney and body of the pipe. When the door *c* however is drawn away from the opening the valve *e* will close the communication between the chimney and body of the pipe. On the opposite sides of this pipe and at two or more points, are openings covered by the permanent inclined shields *h, h*, the mouths of which catch the air so that the latter is directed into the said openings as illustrated by arrows Fig. 7.

To the tender is secured a conducting pipe E having one or more openings and inclined shields arranged in the same manner as those on the conducting pipe D. the front end of the tube E having an expanded mouth *i* for receiving the rear end of the tube D. A conducting pipe F (Figs. 1 and 2) is hung loosely between pins *j j*, to the top of each car of the train, and rests on springs secured to the top of the car. This pipe, which will be best observed on reference to Figs. 4, 5 and 6, has at suitable intervals and on each side two adjacent openings *m m*, a shield G being hinged to the tube at every point where these openings occur, the shield being of such a size and so arranged that it may be turned to the two positions shown in black and red lines Fig. 4.

When the car is moving in the direction of the arrow the shields are in the position shown in black lines so as to catch the air and direct it to the openings *m m*. When the car, with the pipe, is moving in a direction contrary to that pointed out by the arrow, the shields G occupy the position shown in red lines with precisely the same effect as regards catching the air and guiding it to the openings. The opposite end of the pipes are provided with similar movable shields to direct the air to the interior of the conducting pipe through openings *n n*. The whole of these hinged shields are so connected together by a rod H that they may be operated simultaneously by an arm I forming part of a rod which passes through the car, or by any other suitable appliances.

When a railway train furnished with the above described conducting pipes, is in motion, the door *c* (Fig. 8) is closed and the valve *e* raised so that the smoke and such of

the sparks as can escape through the perforated plate *b* pass directly into the conducting pipe *D* of the locomotive. The forcible currents of air passing into the mouths of the shields *h* and entering the sides of the pipe, serve to propel the smoke and sparks along the latter and into the pipe *F* of the tender along which they are propelled by currents of air entering the mouths of similar shields, and so on throughout the whole series of pipes on the cars, until the smoke, and the sparks, cooled by their passage through the pipes, escape at the rear of the train where they fall to the ground.

When the train is about being stopped the door *c* is drawn back thereby exposing the opening at the top of the pipe *D* and closing the communication between the chimney and pipe by means of the valve *e*, the opening in the pipe however is covered by the plate *d* of fine wire gauze so that no sparks can escape during the slow movement of the train prior to the stopping of the same. The door *c* and plate *d* of wire gauze remain in the same position on starting the train and until the latter has gained such a speed that the currents of air are forcible enough to propel the sparks along the tubes after which the door *c* is closed and valve *e* opened as before.

The object of hanging the conducting tubes loosely to the cars is in order that they may accommodate themselves to the lateral movements of the cars when the latter are in motion.

The objects of the movable shields on the

conducting tubes *F* above the cars, which have to be constantly reversed, will be obvious.

It will be evident without further explanation that by the above described system of conducting tubes communicating with the chimney the general dispersion of the smoke and sparks as from ordinary chimneys is effectually prevented and all danger arising from ignited sparks falling on combustible materials, avoided.

I am aware that it has been heretofore proposed to convey the smoke and sparks from the chimneys of locomotives over the roofs of cars by means of conducting pipes. I do not, therefore, claim broadly such a device; nor do I claim the slide *d* and valve *e* in connection with the chimney, but

I claim as my invention and desire to secure by Letters Patent—

The conducting pipe *F* with its openings *m m* and hinged shields *G* when the latter are connected to the bar *H* for simultaneous movement and when the whole is arranged on the top of a railway car and combined with the conducting pipe *D* and chimney *a* of the locomotive as and for the purpose herein set forth.

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

LORENZO P. TEED.

Witnesses:

GEORGE J. RICHLAND,
CHAS. H. SHRINER.