

No. 753,203.

PATENTED FEB. 23, 1904.

R. McKINNEY.
BIT FOR COAL MINING MACHINES.

APPLICATION FILED JUNE 10, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

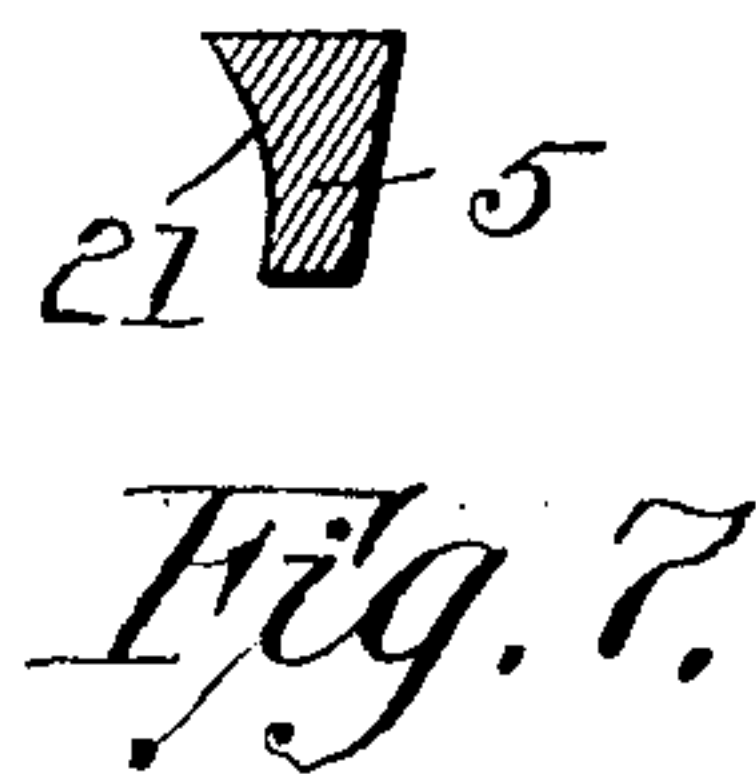
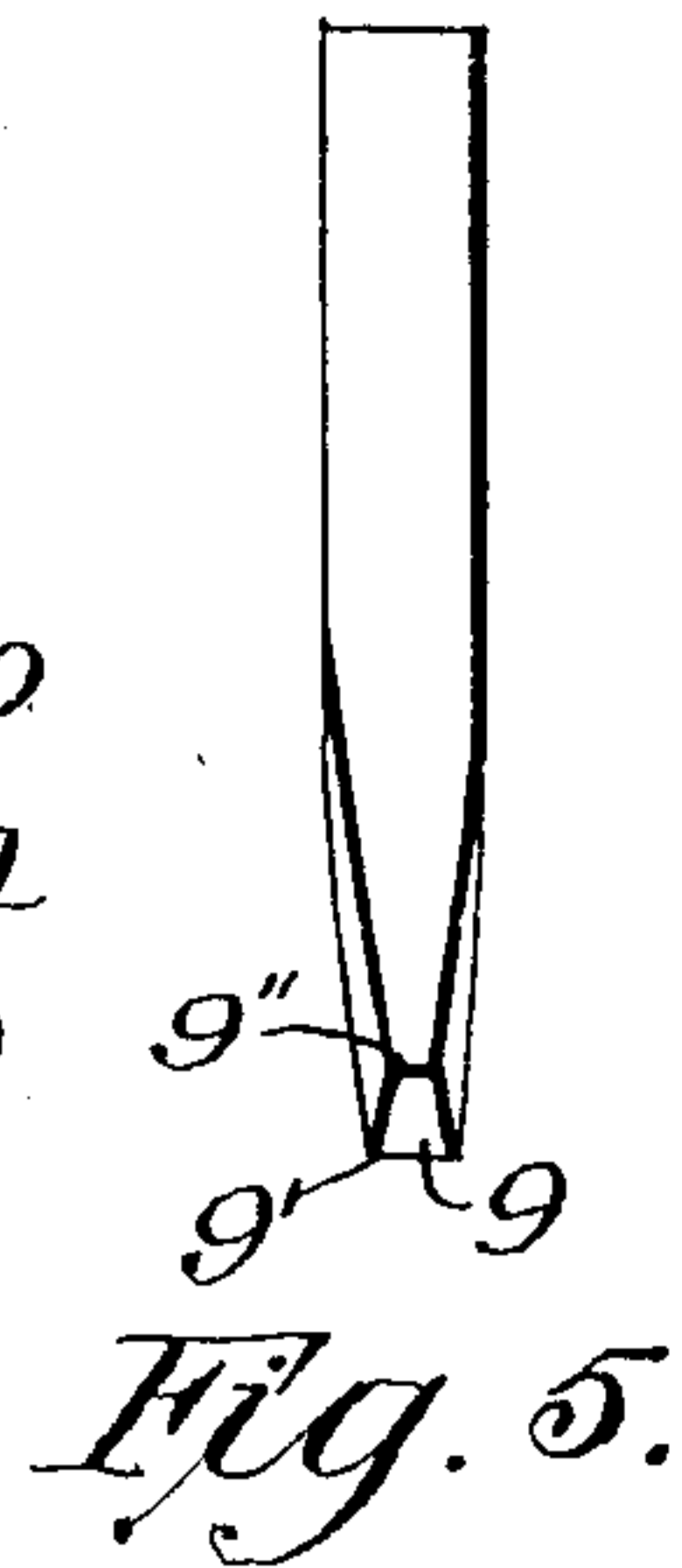
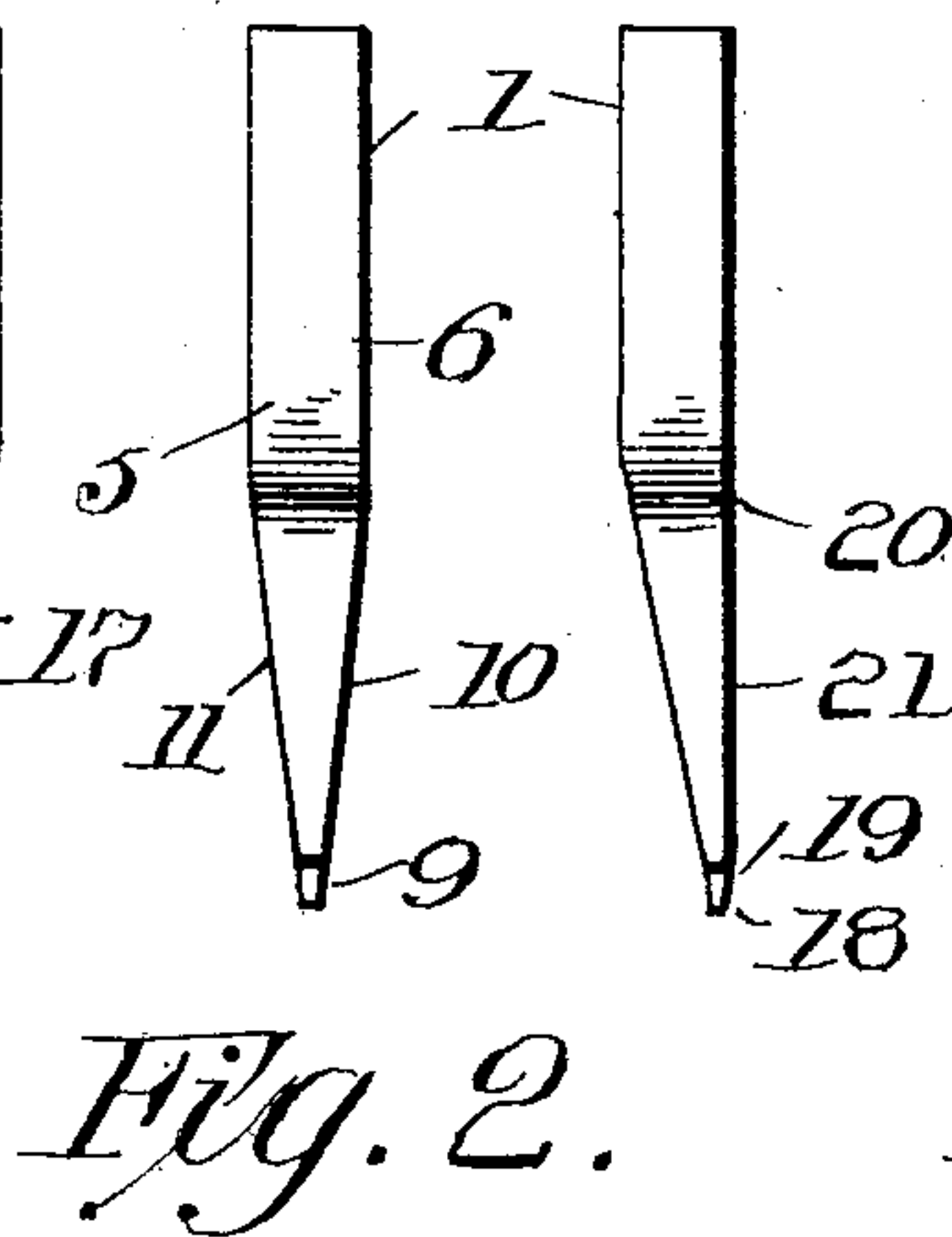
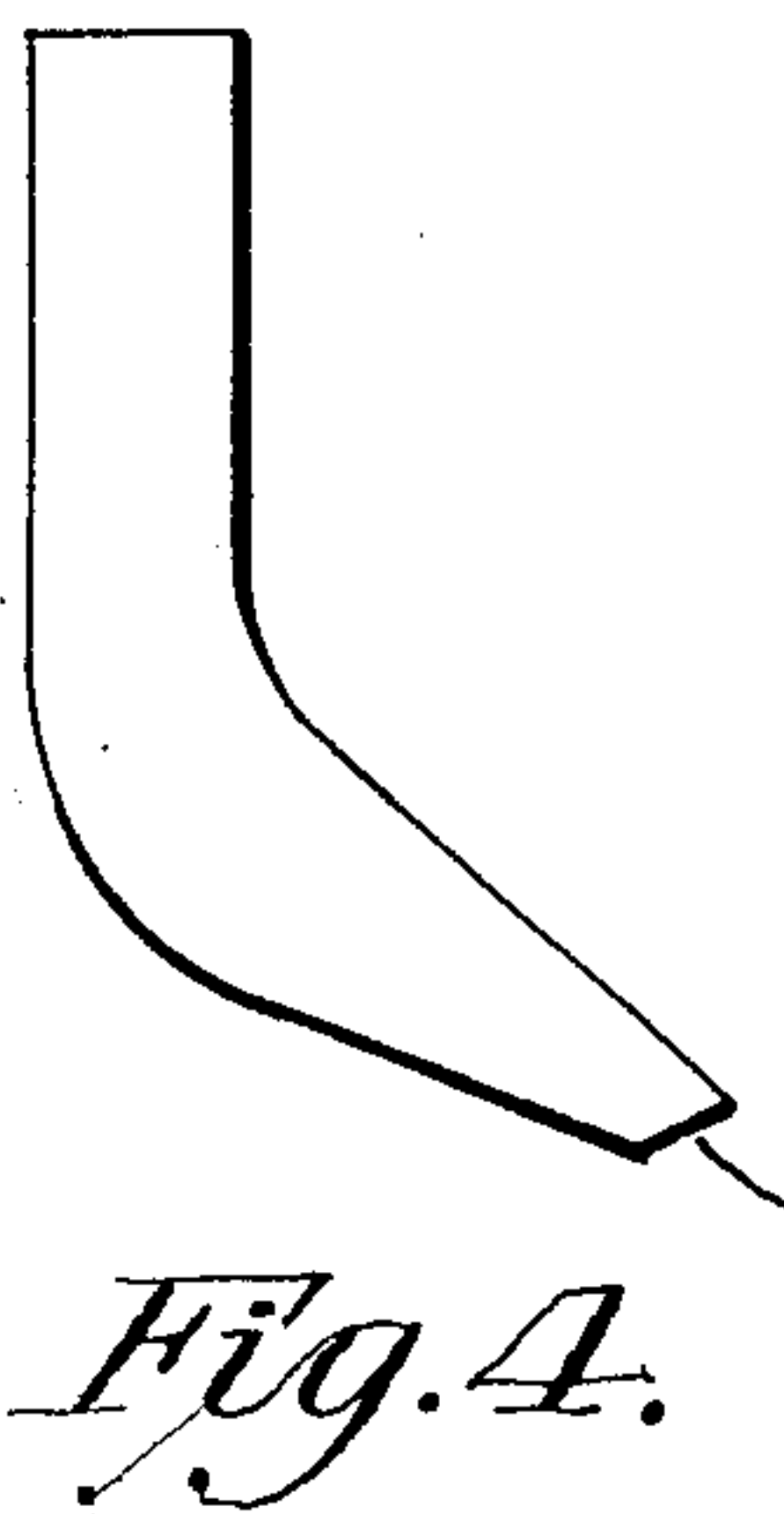
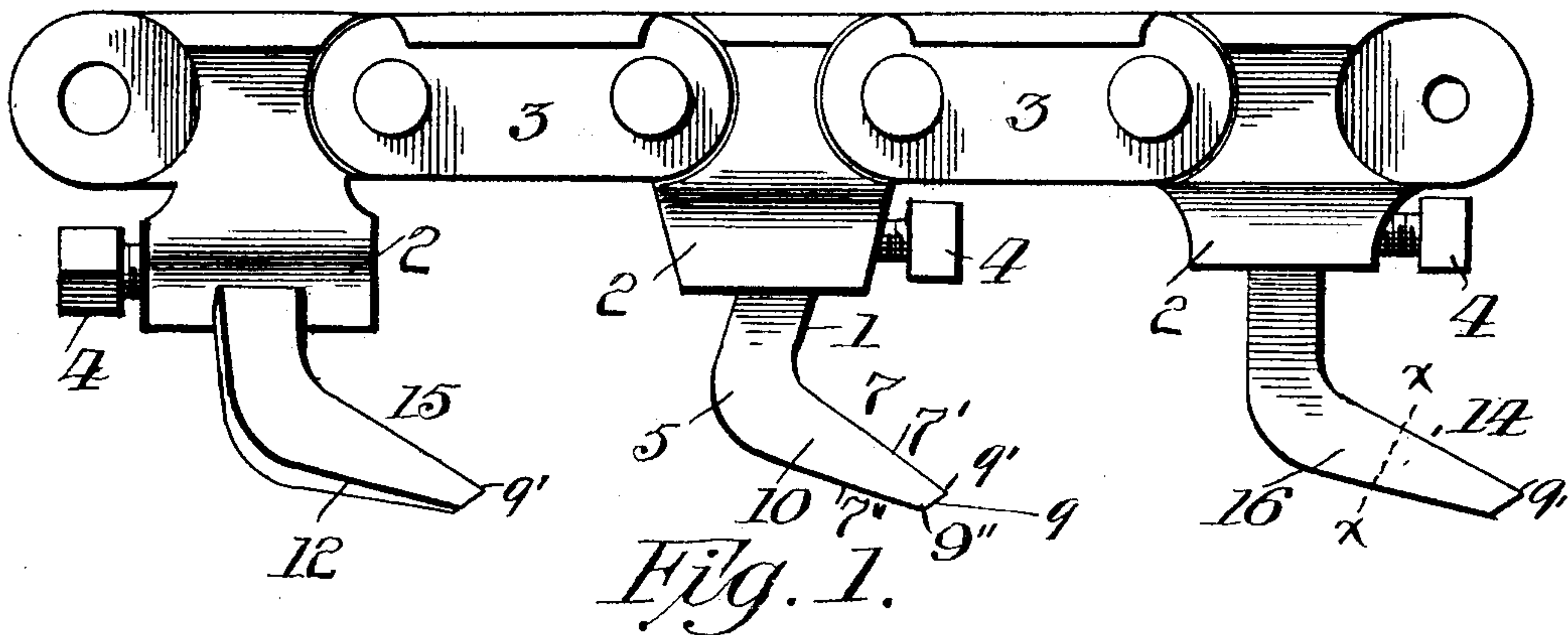


Fig. 6.
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2 SHEETS—SHEET 2.

Fig. 8.

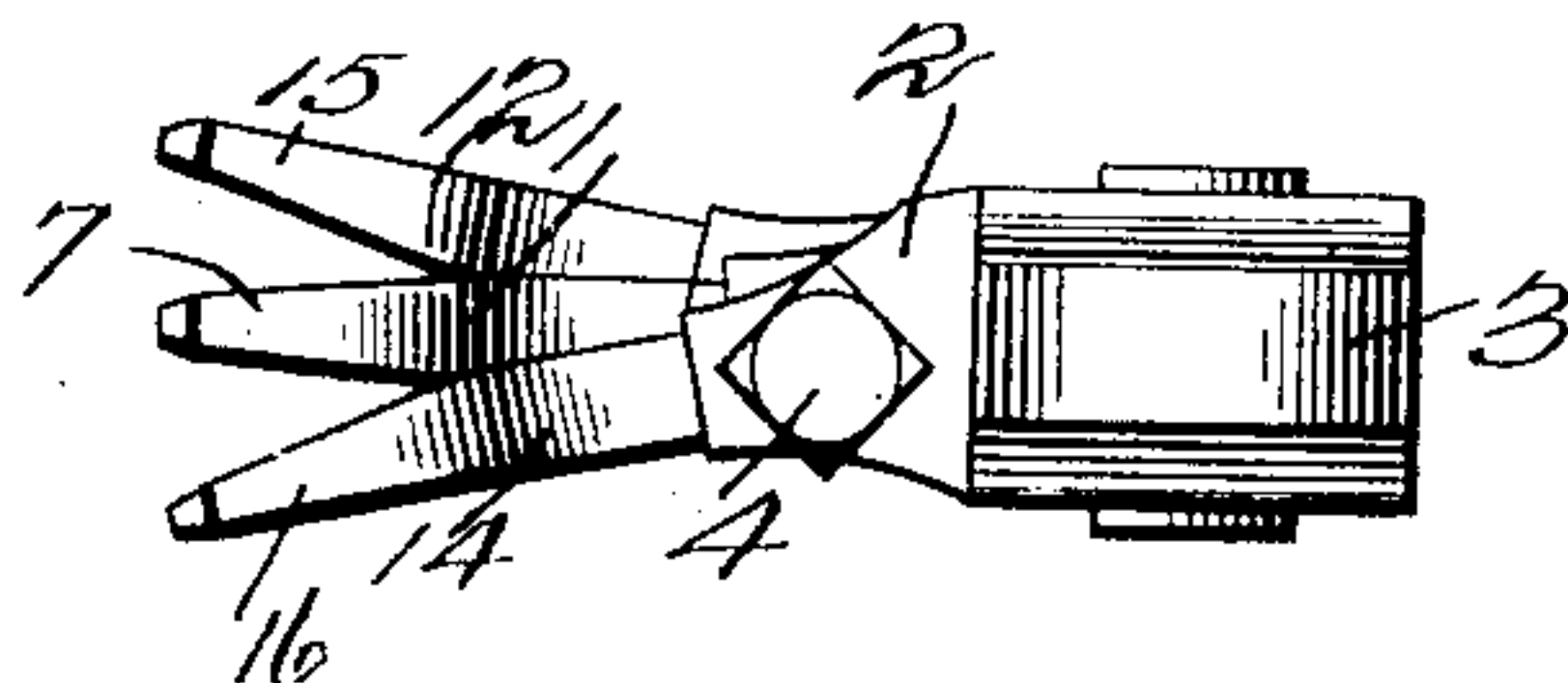
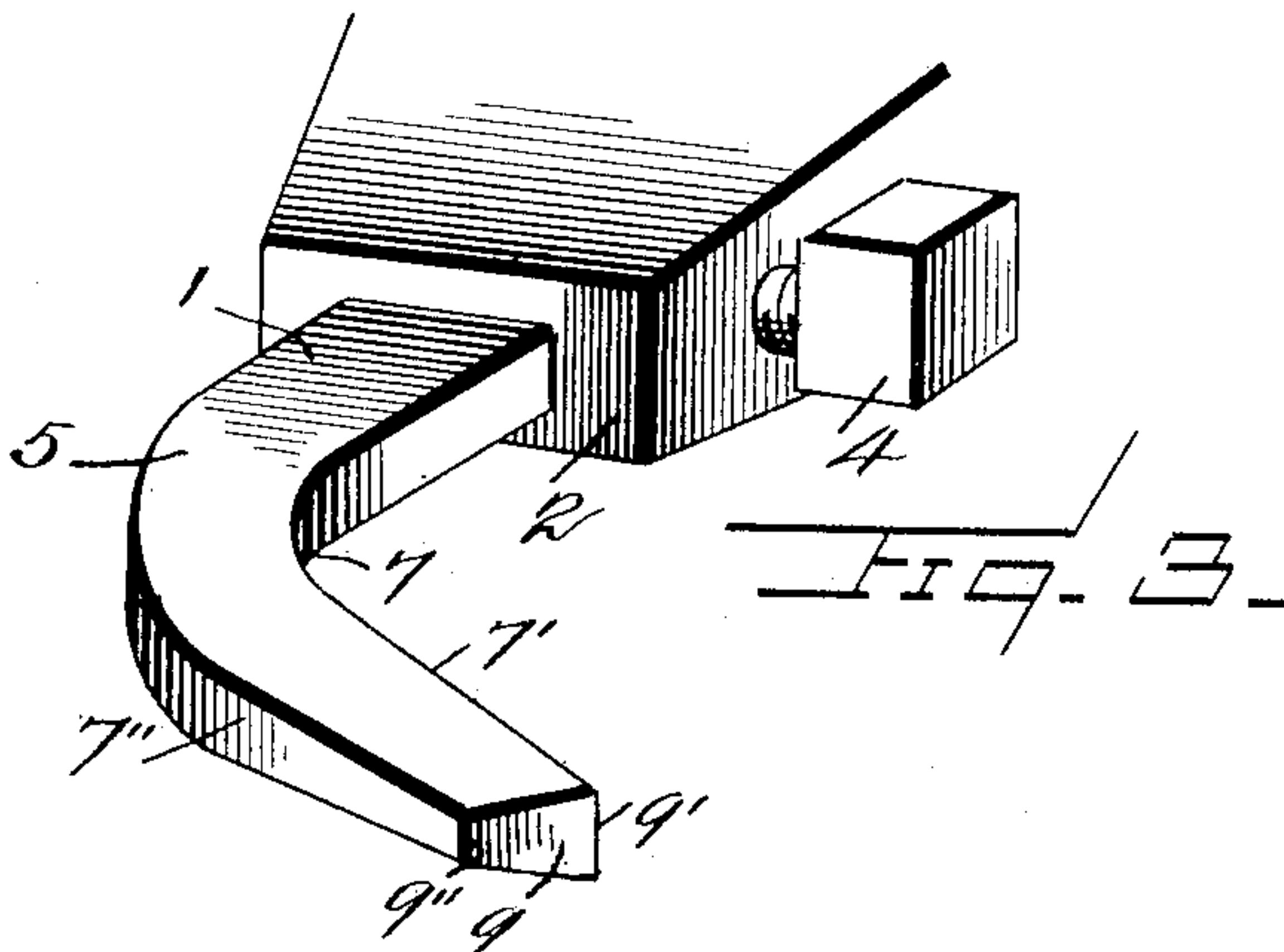
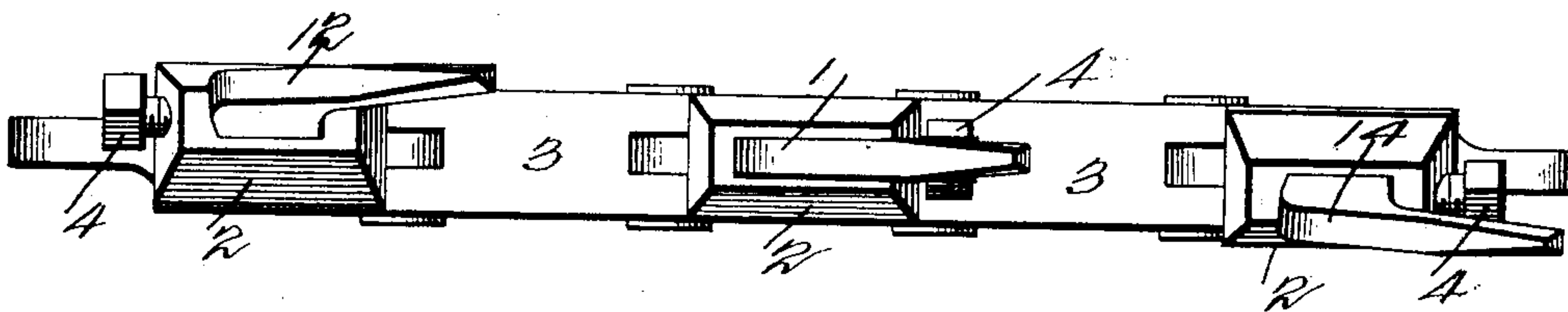


Fig. 9.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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BIT FOR COAL-MINING MACHINES.

SPECIFICATION forming part of Letters Patent No. 753,203, dated February 23, 1904.

Application filed June 10, 1903. Serial No. 160,854. (No model.)

To all whom it may concern:

Be it known that I, ROBERT McKINNEY, a citizen of the United States of America, residing at Hays borough, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Bits for Coal-Mining Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in bits for coal-mining machines, and more particularly to that class of machines wherein a traveling chain is employed which carries a plurality of bits for mining the coal.

The object of my invention is to provide a bit which may be used in combination with two other bits, said bit being of such construction that the ordinary amount of blacksmithing to keep the bit in condition is decreased.

Another object of my invention is to provide a bit which may be forged or hand-made, said bit being of such construction as to mine the coal in a more useful and marketable state, thus avoiding the pulverization which takes place with the bit ordinarily used.

A further object of my invention is to provide a bit which will be strong and durable, highly efficient in use, and one wherein the loss of time necessitated by removing and attaching the bits to the machine is to a great extent avoided.

Heretofore considerable power has been required by the machine to drive the traveling chain to which the bits are attached through, over, and under the hard materials, such as "sulfur streaks" or "strata," often encountered while mining coal. By the construction of my improved bit it has been found by experience that the same requires a less amount of power to operate the machine than heretofore. It has also been noticed that the coal cut by my improved bits is more perfect in form, presenting a smooth surface on top and bottom of the cut, thereby avoiding the rough and ragged surface which is common to bits now generally used.

My invention consists in the novel construction, combination, and arrangement of parts to be hereinafter more particularly described, and specifically pointed out in the claims.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like numerals of reference indicate like parts throughout the several views, in which—

Figure 1 is a plan view of a traveling chain, showing my improved bits in position upon the same. Fig. 2 is a front face view of the three bits. Fig. 3 is a perspective view of the center bit. Fig. 4 is a plan view of the end bits. Fig. 5 is a rear face view of the center bit. Fig. 6 is a rear elevation of one of the end bits, and Fig. 7 is a cross-section taken on the line *x x* of Fig. 1. Fig. 8 is an end elevation of the construction shown in Fig. 1, and Fig. 9 an outer side elevation of the same.

To put my invention into practice, I provide a series of bits, as illustrated in the accompanying drawings, said bits being forged or hand-made and comprising a shank 1, which is secured in the blocks 2 of the chain 3 by means of set-screws 4, and the chain and blocks which I have illustrated in Fig. 1 are preferably of that make known to the trade as the "Jefferies" chain, although my improved bits may be employed upon any chain used in mining coal. It will be seen by Fig. 2 of the drawings, which shows the relative arrangement of the bits, that the center bit is placed in horizontal alinement with the body portion of the chain, while the two end bits project alternately in opposite directions at an angle of about ten to fifteen degrees to the center bit, whereby the path of travel of the three bits will present a cutting-surface equal to that shown in Fig. 2 of the drawings, the points of each bit being equally spaced apart, as shown.

The center bit, as indicated by numeral 5, consists of the shank portion 1, which is secured in the block 2, the forward end of which is formed at an angle, as indicated at 7, said portion extending outwardly at an angle of about ninety degrees. This angled por-

tion has its front and rear faces 7' and 7'' tapered outwardly toward a point, and the top and bottom sides of said angled portion are also tapered outwardly, as shown in Fig. 3 of the drawings. The outer extremity of the angled portion is inclined, as indicated at 9, said inclined extremity extending rearwardly upon the rear face 7'', the front or cutting edge 9' being of greater width than the rear edge 9''. The top and bottom forward edges of the angled portion being beveled, as shown in Fig. 5 of the drawings, forms the end 9 in a substantially trapezoidal form.

The end bits 12 and 14 are somewhat similar in form to the bit 5; but the angled portions of these bits have their outer sides in the same plane substantially as the outer side of the shank portion, as indicated at 21 in Fig. 2. The outer sides 21 of the bent portions of bits 12 and 14 are slightly beveled or hollowed out, as shown in the sectional view, Fig. 7, so as to afford clearance on that side.

It will be seen that when the three bits are in position upon the chain the beveled edge 9 of the three bits will present a cutting edge, and the portion of the bit adjacent to these points will also serve to cut the coal, and particular attention is called to the construction of the end bits, whereby the sides projecting outwardly are beveled or hollowed, whereby frictional contact with the coal during the cutting process, except with the extreme edge of the bit, is entirely dispensed with.

While I have herein shown and described a practical embodiment of my invention, yet it will be obvious that various slight changes may be made in the details of construction without departing from the general spirit of my invention.

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

1. A cutter device of the type set forth comprising a chain, three bits which are adapted

to be secured in said chain, said bits comprising a shank and angle portion, the angled portion of each bit having its front and rear faces tapered toward an edge, one of said bits having its sides tapered toward the rear face and toward the outer extremity, said outer extremity being beveled from the front to the rear face and the other two having one side tapered toward the extremity.

2. A cutting device of the type set forth comprising a chain, three bit-sections which are adapted to be secured in said chain each bit consisting of a shank and angled portion, the angled portions of one bit having front and rear faces tapered toward the extremity of the angled portion and its sides tapered inwardly toward the rear face and toward said extremity of the angled portion and said extremity being beveled from the front face to the rear face and the other bits having an angled portion, front and rear faces and having one side tapered toward the extremity of the angled portion, the front edge of the outer side being in alinement with the shank and said last-named side being hollowed or recessed substantially as described.

3. A cutter of the type described comprising a chain and three bits adapted to be secured in said chain, each of said bits having a shank, an angled portion, a tapered front and rear face and beveled extremity, one of said bits having both sides tapered toward said extremity and from the front face to the rear, the other two having their inner side tapered toward the beveled extremity and their outer side in alinement with the shank and beveled toward the rear face of the angled portion substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

ROBERT McKINNEY.

Witnesses:

E. E. POTTER,
K. H. BUTLER.