A. M. Smith,

Bit Stock.

No. 51,874. Patented Jan. 2, 1866.

Fig. 3

Fig. 1

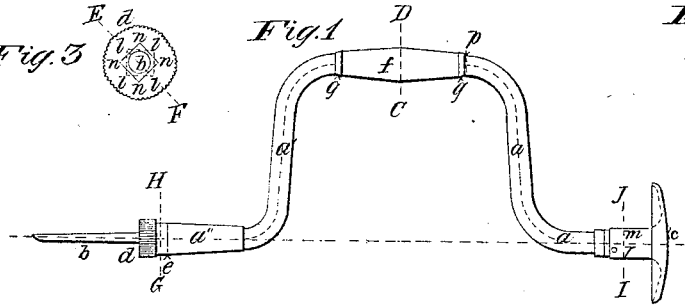


Fig. 5

Fig. 2

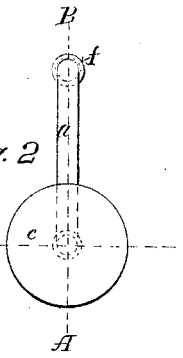


Fig. 7

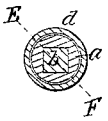


Fig. 4

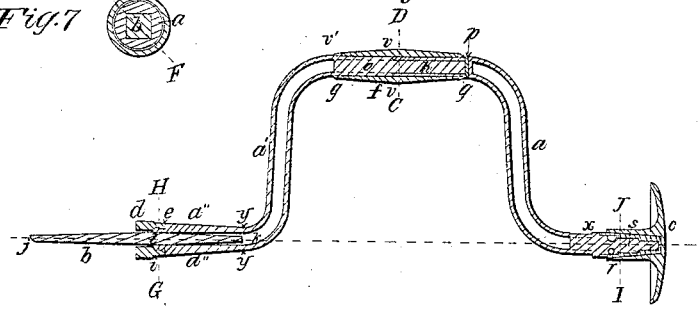


Fig. 11

Fig. 6

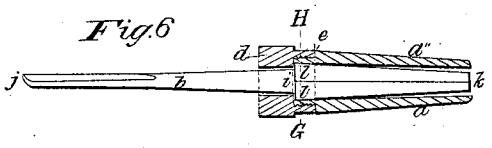


Fig. 8

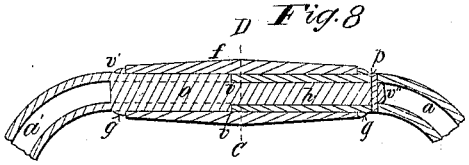


Fig. 9

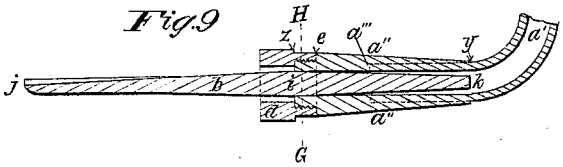


Fig. 10

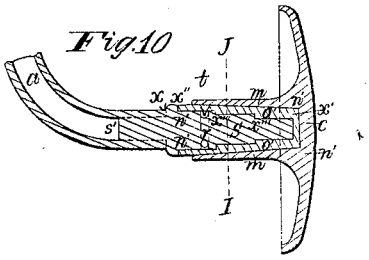
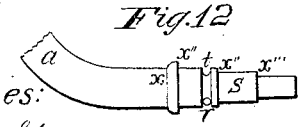


Fig. 12



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UNITED STATES PATENT OFFICE.

AARON W. SMITH, OF MANCHESTER, NEW HAMPSHIRE.

IMPROVEMENT IN BIT-STOCKS.

Specification forming part of Letters Patent No. **51,874**, dated January 2, 1866; antedated December 26, 1865.

To all whom it may concern:

Be it known that I, AARON W. SMITH, of Manchester, in the county of Hillsborough and State of New Hampshire, have invented a new and Improved Mode of Constructing Bit-Stocks; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference thereon, same letters representing like parts in the several figures.

Figure 1 is an elevation of bit-stock; Fig. 2, elevation of end *c* of Fig. 1; Fig. 3, elevation of end *d*, Fig. 1, showing nothing beyond the end; Fig. 4, section on line A B of Fig. 2; Fig. 5, section on line C D of Fig. 1; Fig. 6, section on E F, Figs. 3 and 7, showing piece *d* and part of *a''* in section, but showing tool *b* in elevation; Fig 7, section on G H of Fig. 1; Fig. 8, part of Fig. 4 enlarged; Fig. 9, part of Fig. 4 enlarged; Fig. 10, part of Fig. 4 enlarged; Fig. 11, section on line I J of Fig. 10; Fig. 12, view of spindle *s* removed from the socket *c'*, so as to show it in elevation.

The nature of my invention consists in enabling me to give to the handle or bow of the stock a revolving metal cone, and so to construct the head of the stock as to render it more durable, and its opposite end, where the bit or cutting-tool is inserted, more serviceable for inserting such tool, and confining the tool in its place after it is introduced into the bit-stock.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

a and *a'*, Fig. 1, are tubes made from plate-steel, and are constructed so as to be taken apart at *v*, Fig. 8, for the purpose of attaching to the bow of the stock a revolving metallic handle, *f*, Fig. 8, a section of *f*, and the shaft on which it revolves being shown by Fig. 5. In order to sufficiently strengthen this part of the stock, and for the purpose of attaching *f*, I permanently fasten in *a'*, Fig. 8, one half of rod *o h*, from *v* to *v'*, Fig. 8, and the other half, from *v* to *v''*, Fig. 8, being made to fit tightly in *a*, is there secured by *p*, Fig. 8, a pin passing through *a* and *h* and riveted into *a*; but this *p* in the model is made as a screw for the purpose of taking the stock apart at *v*, Fig. 8. Around *a* and *a'*, I place two collars, *g* and *g*, Fig. 8, at a distance apart equal to the length of *f*, to keep *f* in place as it revolves. *f* is made to separate and put onto *a'* before *a* and *a* are fastened together, as described, and of course *f* can be removed on taking out *p*, Fig. 8, and drawing *h* out of *a*. I contemplate the breaking off or separating the bit-stock at this point for the purpose of attaching a suitable handle thereto, whether it is done in this method now described or in any other, for I believe heretofore it has been found impracticable to attach any suitable revolving metal handle to a metal bit-stock, such stocks having been heretofore made whole at the bow, or where they are held by the hand in turning, and not so constructed as to be taken apart at this place. The advantages of a suitable revolving handle-piece are too obvious to be specified.

I will now describe the improvements I have made in the mode of attaching head *c*, Figs. 1, 2, 4, 10, and 12, to the shaft *a*, and my object here is to obtain several bearings, in order to prevent the wearing of *c* sidewise upon its shaft, as turning the bit-stock by hand tends to wabble *c*, and soon to render it comparatively useless. To obviate this wabbling, I insert into *a*, Fig. 10, a steel plug, *s*, as far as *s'*, and permanently fasten it there, its shoulder at *x* bearing against the end of *a*, Fig. 10. This *s*, Fig. 10, is turned off between *x''* and *x'''*, and between *x'''* and *x''''*, and between *x''''* and *x'*, of different diameters for the purpose of getting bearings at *x''*, *x'''*, *x''''*, and *x'*. Corresponding to *s*, I make a steel thimble, *o'*, Fig. 10, chambered out to fit *s* from *x''* to *x'*, so that *o'* may revolve on *s*, *o'* being on its outside round and wedge-shaped for a purpose hereinafter described.

c is the head of the bit-stock, cast of metal or made of other material, and is chambered to a wedge shape to receive *o'*, Fig. 10; and *o'*, designated by *n' n' n' n'*, Fig. 10, after being made as described, is driven into its corresponding chamber in *c*, Fig. 10, and by its wedge shape there held fast, the top of *o'* resting firmly against *c*. I do not wish to confine myself to this precise number of shoulders, as one or more might perhaps be dispensed with.

A further improvement I claim in bit-stocks is in the socket or bit end of the stock, which I will now describe.

To *a'*, Fig. 9, I attach the socket *a''*, Figs. 1, 4, 6, 9, as shown by red lines in Fig. 9. *a''* is round outside and tapering from *e* to *y*, Fig. 9, and inside from *y* to *a'''*, Fig. 9. It is bored out to receive *a'* from *a'''* to *y*, and from *a'''* in an opposite direction to the end in *a''* is a square tapering socket for the reception of the bit or tool *b*. From *e* to *z*, Fig. 9, a shoulder is turned, and on this a male screw is cut, as shown in Figs. 6 and 9. Upon this screw a thumb or socket nut, *d*, Figs. 9, 6, 4, is made to fit. *d* is made separate and screws onto *a''*, Fig. 1, as described. The outside of *d* is constructed so as to be readily turned by the hand. The inside of *d* is round between *z* and *e*, Fig. 9, with a female screw, cut between *z* and *e*, fitted to the male screw on *a''*. The opening through the other end of *d* is a square hole, *b*, Fig. 7, corresponding in size to the square hole in *a''*, before described. *d* is made separate to take it off of *a''*, in order to fit the shank of tool *b*, Figs. 6 and 9, to its socket in *a''*, Figs. 6 and 9.

The tools or bits when purchased being square from *l* to *k*, Fig. 6, and cylindrical from *l* to *j*, Fig. 6, always need a little fitting to the stocks they are to be used in. In this case so as to allow *d*, when turned one-eighth revolution, to bear against the corners of the bit, as hereinafter described.

After *b* is fitted *d* is turned down tightly on the screw on *a''*, and is shown in this position by Fig. 3, in which *l l l l* represent the corners of *b*, and *n n n n* the corners of the square hole in the outer end of *d*, and thus the inner side of that part of *d* shown by lines *n n*, *n n*, *n n*, and *n n*, Fig. 3, is brought into contact with and upon the corners *l l l l* of *b*, Fig. 3, and holds *b* firmly in its socket in *a''*, Figs. 1, 4, 6, and 9. To release *b* and take it from its socket it is not necessary to remove *d* from *a''*, but only necessary, with the thumb and finger, to turn back *d* one-eighth of one revolution until the lines *n n* and *l l*, Fig. 3, correspond with each other, when *b* is at once drawn from its socket by the hand. So, to insert *b* into *a''* after fitting it, it is not necessary to remove *d*, but simply to turn it until lines *n n* and *l l* coincide, as described, when *b* drops to its socket, and is then secured by turning *d* one-eighth turn to its shoulder, as before described.

In describing *s* and *o'*, Fig. 10, I omitted to mention pin *t*, which is inserted into *c o'*, and then fastened to hold *o'* onto *s* by means of a groove cut in *s*, through which *t* plays, as shown in Figs. 4, 10, and 12, as *c* revolves around *s*.

What I claim, and desire to secure by Letters Patent, is—

1. The construction of the bow of a bit-stock, substantially as described, so as to allow of its being taken apart for the purpose of adding thereto a revolving hand-piece.

2. The steel plug *s* and its corresponding steel thimble *o'*, constructed substantially as described, for the purpose of giving durability and steadiness to the revolution of head *c*.

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Witnesses:

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