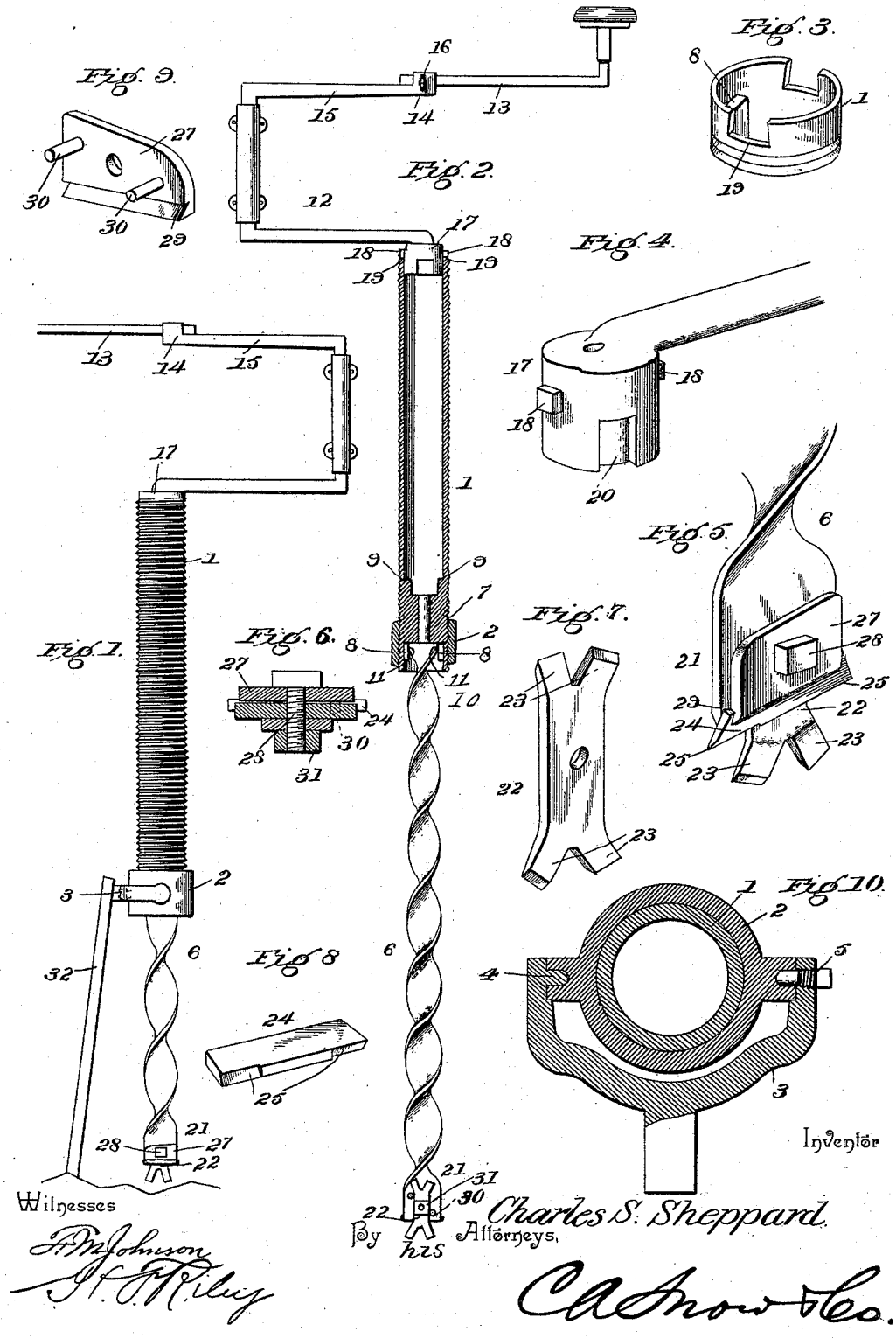
(No Model.)

C. S. SHEPPARD.

COAL MINING MACHINE.

No. 535,924. Patented Mar. 19, 1895.



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UNITED STATES PATENT OFFICE.

CHARLES S. SHEPPARD, OF PITTSTON, PENNSYLVANIA.

COAL-DRILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 535,924, dated March 19, 1895.

Application filed October 23, 1894. Serial No. 526,755. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. SHEPPARD, a citizen of the United States, residing at Pittston, in the county of Luzerne and State of Pennsylvania, have invented a new and useful Coal-Drilling Machine, of which the following is a specification.

The invention relates to improvements in coal drilling machines.

The object of the present invention is to improve the construction of coal drilling machines, and to provide a simple and efficient one, in which the auger may be readily shortened, to increase its stiffness, and to prevent wabbling.

A further object of the invention is to provide a drilling machine in which the feed bar may be readily turned end for end for reversing the auger, and to facilitate the attachment of the crank or operating handle to either end of the feed bar; and furthermore to improve the means for attaching the central and side cutters to the auger.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings: Figure 1 is a side view of a drilling machine constructed in accordance with this invention. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a detail perspective view of an end of the feed bar. Fig. 4 is a similar view of the inner end of the crank handle. Fig. 5 is a detail perspective view of the outer end of the auger illustrating the cutters. Fig. 6 is a transverse sectional view of the same. Figs. 7 and 8 are detail perspective views of the cutters. Fig. 9 is a similar view of the clamping plate. Fig. 10 is a transverse sectional view of the drilling machine.

Like numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates a tubular or hollow feed bar, exteriorly threaded and arranged in an interiorly threaded sleeve 2, which is provided at opposite sides with bearings, and which is trunnioned removably in a yoke 3 by means of an integral journal 4 of the yoke, and a removable journal 5, having a threaded shank located in a threaded opening of the opposite side of the yoke, and having an outer squared end.

The tubular feed bar receives an auger 6, and is provided at one end with an interior annular boss 7, and oppositely disposed lugs 8 and 9 at the ends of the boss. The annular boss 7 forms a reduced opening at that point in the hollow feed bar, for the reception of a shank 10 of the inner end of the auger; and the shoulders 11 at the inner end of the shank, are adapted to engage the lugs 8 and 9 to prevent the auger from rotating within the feed bar, and to hold it rigid with the same.

In Fig. 1 of the accompanying drawings, the auger is shown arranged within the hollow feed bar, and is thereby shortened and stiffened, and prevented from wabbling; and as shown in Fig. 2, the feed bar is reversed to connect the end of the same to the end of the auger, to extend the latter, as shown in Fig. 2 of the accompanying drawings, in order to obtain the proper length of bore or hole in the coal.

The feed bar is rotated by a crank or operating handle 12, which is provided at its outer side with an adjustable brace section 13, secured in a socket 14 of an arm 15 of the handle by a set screw 16. The inner engaging end of the crank or operating handle, is provided with a circular enlargement 17, adapted to fit within either end of the feed bar, and provided with outwardly extending lugs 18 for engaging corresponding recesses or notches 19 of either end of the feed bar, whereby the operating or crank handle is rigidly and detachably connected to the feed bar. The annular enlargement is provided at opposite sides with recesses 20, to receive the lugs 8 of the feed bar when arranged at that end of the same. These lugs also strengthen the attachment of the crank or operating handle, besides serving as the means for rigidly connecting the inner end of the auger to the feed bar.

The outer end 21 of the auger is flattened, and has arranged on one face of it a reversible center cutter 22, provided at each end with diverging cutting blades 23. On the other face of the outer end of the auger is arranged a side cutter 24, projecting beyond the

side edges of the center cutter, and having oppositely disposed cutting edges 25. The outer edge 26 of the end 21 of the auger, is beveled, and cut at an angle to obtain the proper pitch of the side cutter. The side cutter is retained on the beveled edge of the auger by a clamping plate 27, disposed transversely of the auger, and secured to the same by a bolt 28. The outer edge of the clamping plate is provided with a jaw 29, which receives the inner edge of the side cutter, and securely clamps the same.

The bolt 28 passes through the clamping plate, the auger and the central cutter, and serves for securing all of these parts to the outer end of the auger; and the clamping plate is provided with a pair of studs or projections 30, formed integral with the clamping plate and passing through perforations of the auger, and terminating at opposite sides of the center cutter, to prevent the latter from turning on the bolt 28. The nut 31 of the bolt 28 enables the parts to be tightly clamped, and also admits their ready removal for reversing the center cutter to bring either end thereof in operative position.

The yoke is mounted in a suitable brace or standard 32 in the ordinary manner.

It will be seen that the auger is simple, and comparatively inexpensive in construction, that while being light and easily handled, it possesses the desired stiffness, and that it may be readily extended in reversing it to complete the bore.

Changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

What I claim is—

1. In a drilling machine, the combination of a hollow feed bar provided at one end with an interior annular boss, and having lugs arranged at opposite ends thereof, and an auger having an inner end adapted to engage said lugs to hold it rigid with the feed bar, said hollow feed bar being adapted to receive the auger in either end of it, and capable of reversal to lengthen or shorten the auger, substantially as described.

2. In a drilling machine, the combination of a reversible hollow feed bar provided at its ends with notches, and having adjacent to one end an interiorly arranged annular boss, and provided at opposite ends thereof with lugs, an auger arranged within the feed bar and engaging the adjacent lugs and capable of engaging the other lugs, and a crank handle provided at its inner end with a circular enlargement and having lugs to engage the notches of the feed bar, and provided with recesses to receive the adjacent lugs thereof, substantially as described.

3. In a drilling machine, the combination of an auger having a flattened outer end, a reversible center cutter arranged on one face of the auger, a side cutter arranged on the opposite face of the auger and disposed transversely of the outer end thereof, a clamping plate having a jaw engaging the side cutter and retaining the same in position, and a bolt passing through the central cutter, the auger and the clamping plate, substantially as described.

4. In a drilling machine, the combination of an auger, having a flattened outer end beveled at the edge, a reversible center cutter arranged on one face of the auger, a side cutter arranged at the beveled edge thereof, a cutter, said clamping plate being provided with opposite projections passing through the clamping plate having a jaw engaging the side auger and projecting therefrom and arranged at opposite edges of the center cutter, and a bolt passing through the center cutter, the auger and the clamping plate, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES S. SHEPPARD.

Witnesses:

WALTER SMITH,

S. M. PARKE.