

No. 654,831.

Patented July 31, 1900.

C. R. HARPER.
PORTABLE FORGE.

(Application filed Dec. 18, 1899.)

(No Model.)

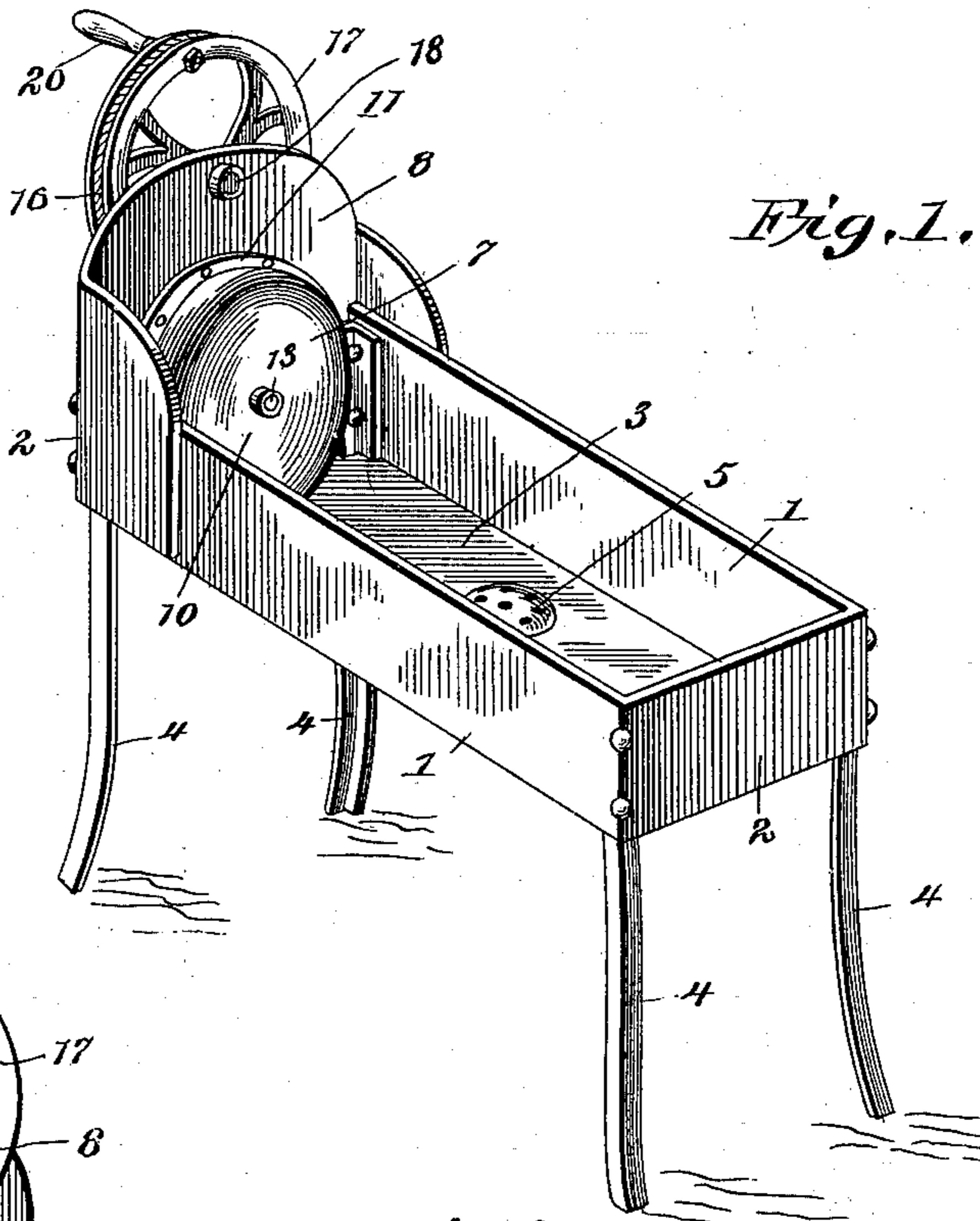


Fig. 2

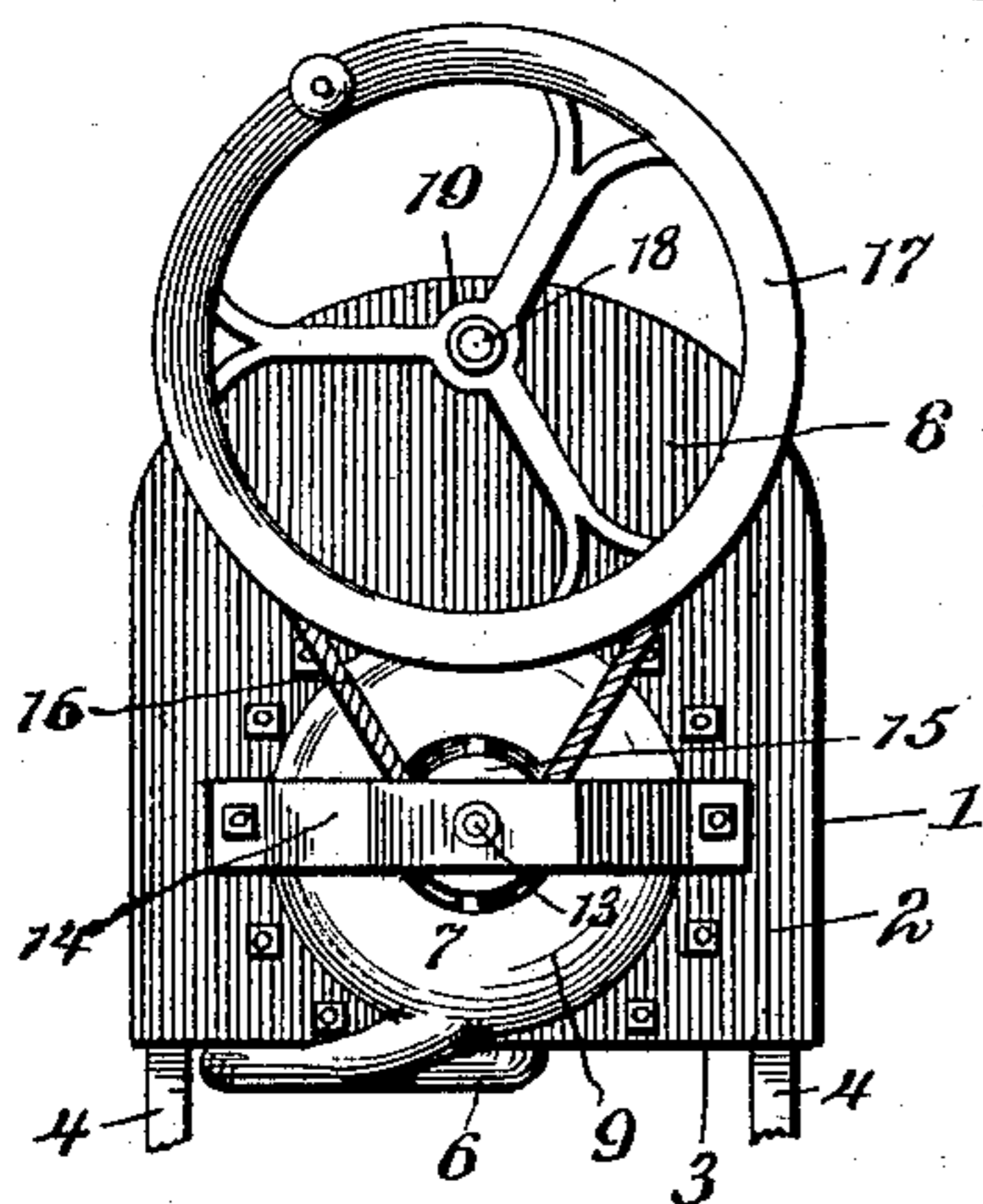


Fig. 3

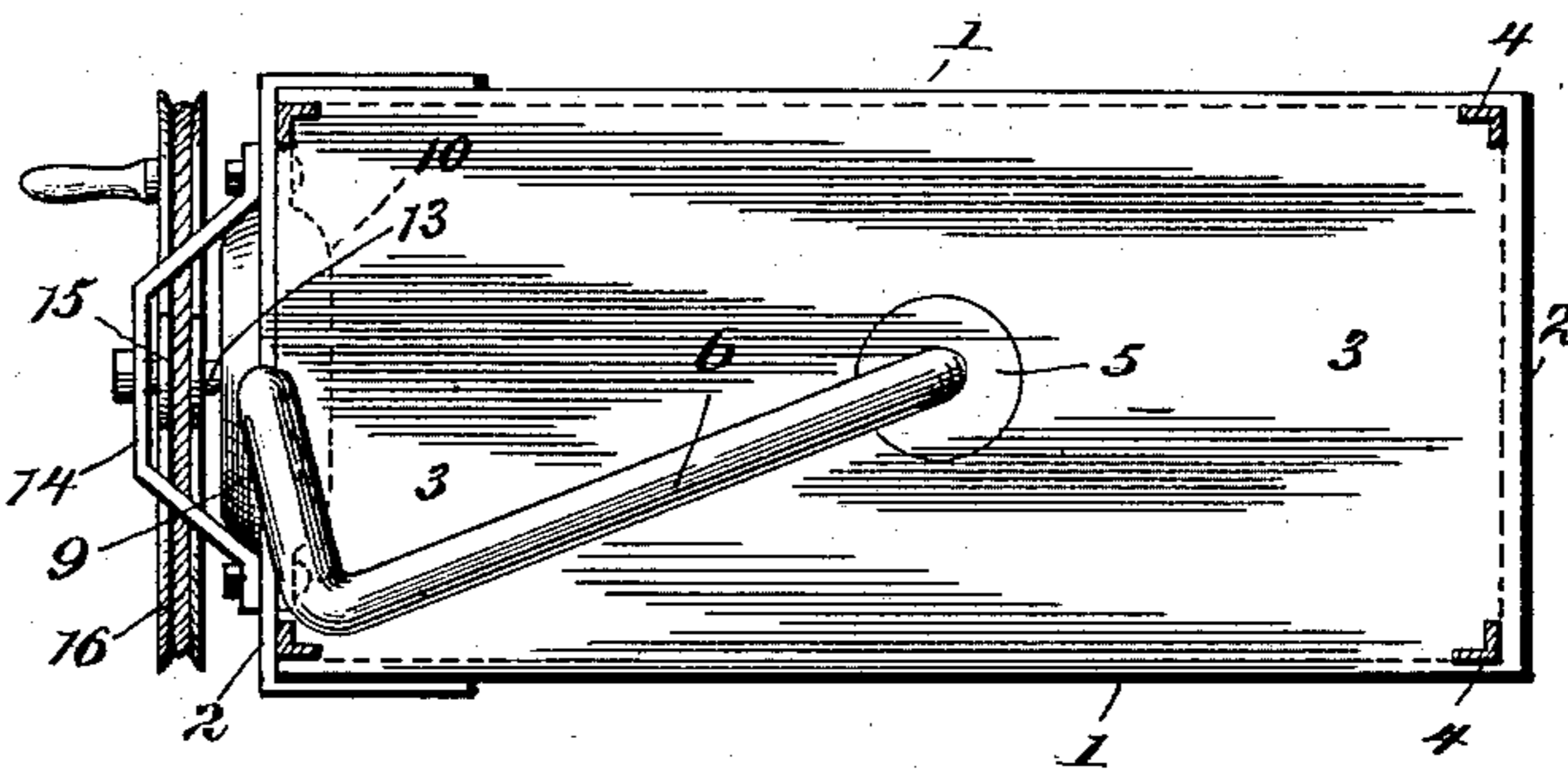
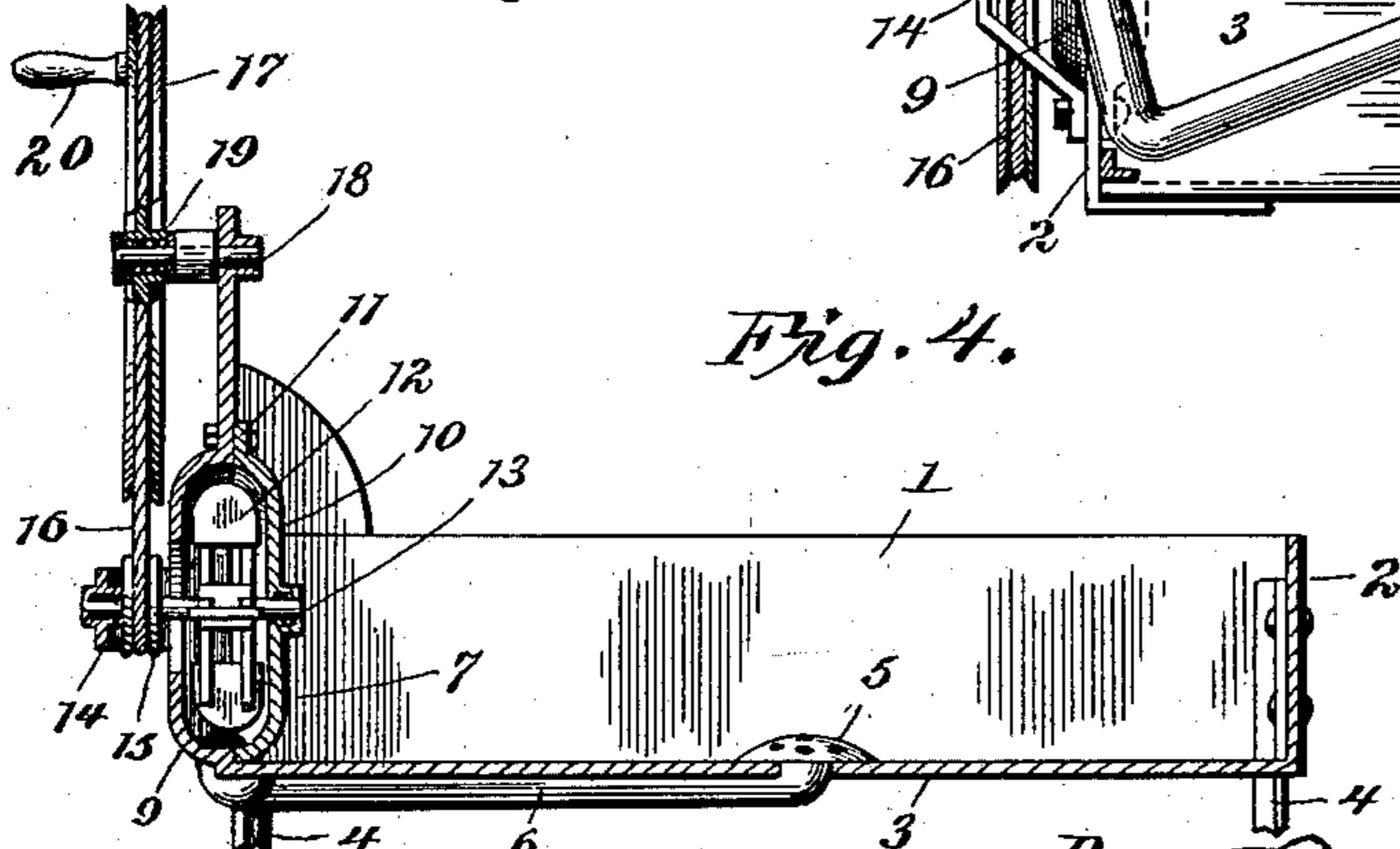


Fig. 4.



Witnesses
Harold H. Simms
D. T. Hallenbeck

By *C. R. Harper, Inventor,*
E. J. Sigg
Attorney

UNITED STATES PATENT OFFICE.

CHARLES R. HARPER, OF MARSHALLTOWN, IOWA.

PORTABLE FORGE.

SPECIFICATION forming part of Letters Patent No. 654,831, dated July 31, 1900.

Application filed December 18, 1899. Serial No. 740,759. (No model.)

To all whom it may concern:

Be it known that I, CHARLES R. HARPER, a citizen of the United States, residing at Marshalltown, in the county of Marshall and State of Iowa, have invented a new and useful Portable Forge, of which the following is a specification.

This invention relates to portable forges, and has for its object the production of a simple, light, compact, and efficient forge constructed in the main of sheet metal pressed or shaped in such manner that the shield will form a portion of the fan-casing as well as a part of the forge-body.

One object of the invention is to provide a forge in which a shield and fan-casing or portions thereof are pressed or formed in one piece, the shield and fan-casing being positioned at one end of the forge-body, where it is entirely out of the way, enabling the forge to be carried from place to place with greater ease than under the old construction, where the fan is located under the hearth. Under the arrangement hereinafter described the liability of the fan becoming broken or injured is obviated, and consequently there is less liability of the forge and the several parts thereof getting out of order. In connection with the driving-wheel or crank-wheel and fan-shaft ball-bearings are provided for increasing the light-running qualities of the machine.

Other subordinate objects and advantages of the invention will appear in the course of the ensuing description.

The invention consists in a portable forge involving certain novel features of construction hereinafter fully set forth, illustrated in the drawings, and incorporated in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a portable forge complete constructed in accordance with the present invention. Fig. 2 is an end elevation of the same looking toward the outer side of the shield. Fig. 3 is a bottom plan view of the same. Fig. 4 is an enlarged detail vertical cross-section through the shield, fan-casing, &c., taken on a line with the shafts of the fan and the driving-wheel.

Similar numerals of reference designate corresponding parts in all the figures of the drawings.

In constructing a portable forge in accordance with the present invention I provide a rectangular forge-body consisting of the parallel sides 1, ends 2, and bottom 3. The sides and ends are preferably constructed in one piece from sheet metal of the requisite gage, and the bottom 3 may also be formed from the same piece or integral therewith. The body is supported upon suitable legs 4. Arranged about centrally of the bottom is a twyer 5 of any usual or preferred construction, communicating by means of a pipe or nozzle 6 with the fan-casing 7 on the shield 8 at one end of the forge-body, the nozzle or pipe 6 passing for convenience along the under side of the bottom of the forge-body.

In carrying out the present invention I provide an upright shield 8 at one end of the forge-body, and said shield, which is preferably formed of sheet metal, may either be formed of a separate piece by itself and attached to the forge-body or it may consist of the end wall of the forge-body, in which event said end of the body will be extended upward the required distance. It is ordinarily preferred, however, to construct the shield independently and from a separate piece of sheet metal, as this facilitates the stamping or pressing of the shield so as to impart to it an outward annular or circular bulge constituting approximately one-half or a portion of the fan-casing 7. By reference to Fig. 4 it will be seen that the portion of the fan-casing 7 which projects upon the outside of the shield is formed integrally with the shield, such portion of the casing being designated by the numeral 9. The inner portion or section 10 of the fan-casing is necessarily formed from a separate piece of material, which corresponds in cross-sectional shape to the part 9, being provided also with a peripheral flange 11, by means of which it is bolted or otherwise fastened to the shield, so as to occupy a position opposite the part 9, thereby forming a complete fan-casing.

The construction hereinabove described not only provides a simple and effective fan-casing, but locates the fan-casing and shield at one end of the forge-body and materially strengthens the shield and forge-body. The construction also serves to prevent objects from coming into injurious contact with the

fan-casing, which might result in indenting the fan-casing, and thereby interfering with the proper operation of the fan.

The fan 12 is mounted within the casing upon a short shaft or spindle 13, which is journaled in ball-bearings in the fan-casing and also in an off-standing bracket 14, secured to the outside of the shield. The spindle 13 has near its outer end and within the bracket 14 a small pulley 15, which receives a driving belt or band 16, passing around a driving or crank wheel 17, journaled on a stud-shaft 18 upon the outer side and near the top of the shield 8. The journal of the driving-wheel 17 is equipped with a ball-bearing 19, similar to that in every-day use upon bicycles, thus adding to the easy-running qualities of the operating mechanism, whereby the necessary blast is produced. The fan is so arranged that the air is drawn in through the central portion of the casing and forced outward through the pipe or nozzle 6, which preferably bears a tangential relation to the fan-casing. The wheel 17 is provided at a suitable point with a crank-handle 20 for use when the machine is operated by hand; but, if desired, the wheel 17 may be constructed to receive a band or belt from any suitable motor.

In view of the above description it will be seen that by forming a portion of the fan-casing and the shield in one piece additional strength and rigidity are imparted to both the casing and shield and, in addition thereto, to the forge-body. At the same time the fan-casing is protected from injury, and being located at one end of the body is out of the way, thus enabling the forge to be more readily handled and carried from place to place with greater ease than under the old construction and arrangement, in which the fan-casing is generally located below the hearth.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described portable forge will be apparent to those skilled in the art without further description, and it will be

understood that changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a portable forge, the combination with a forge-body, of a shield forming a part of, and wholly supporting, a fan-casing, a shaft mounted in the casing formed in part by the shield, and a fan-driving mechanism attached to the shield.

2. A forge-body provided with an upwardly-extending shield having a bulging portion forming part of a fan-casing, in combination with a complemental fan-casing section secured thereto and adapted to receive a fan.

3. In a portable forge, a shield having a portion thereof formed to constitute a member of a fan-casing as an integral part thereof, and a complemental fan-casing member secured to the shield in matching relation to the depressed portion thereof, combined with a bracket secured to the shield, a fan-shaft journaled in the shield and the bracket, and a fan-driving mechanism.

4. In a portable forge, the combination of a shield at one end of the forge-body, a fan-casing supported wholly by the shield and provided in one side with a ball-bearing, a bracket fast with the shield and having a ball-bearing in alinement with the similar bearing of the fan-casing, a fan-shaft journaled in said bearings, a stub-shaft supported on the shield, a crank-wheel having a ball-bearing on the stub-shaft, and gearing between the crank-wheel and the fan-shaft.

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

CHARLES R. HARPER.

Witnesses:

HUGO NEUMANN,
G. A. VAN ORMAN.