

No. 633,314.

Patented Sept. 19, 1899.

C. HAMMELMANN.
PORTABLE FORGE.

(Application filed Aug. 13, 1898.)

(No Model.)

2 Sheets—Sheet 1.

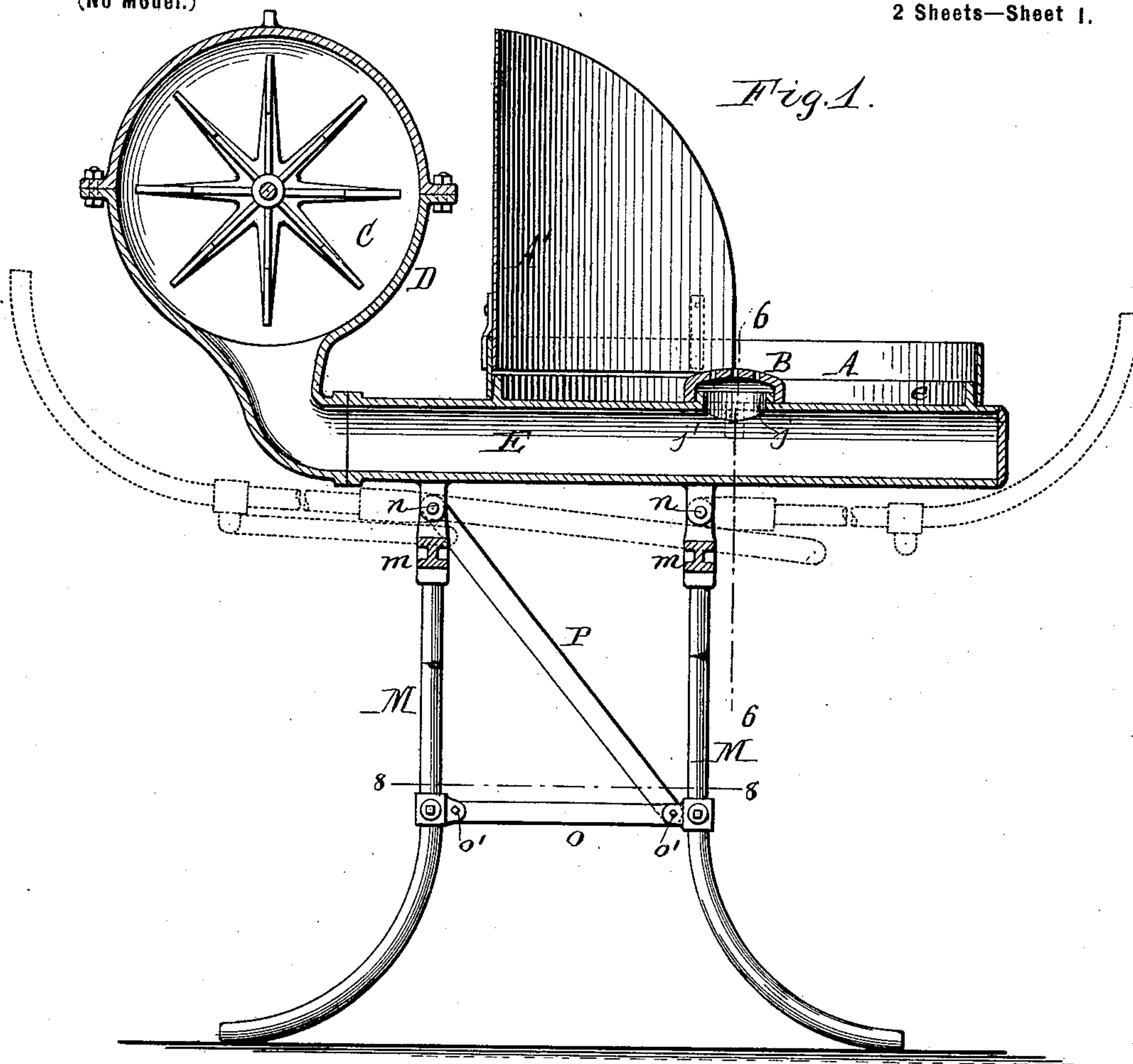
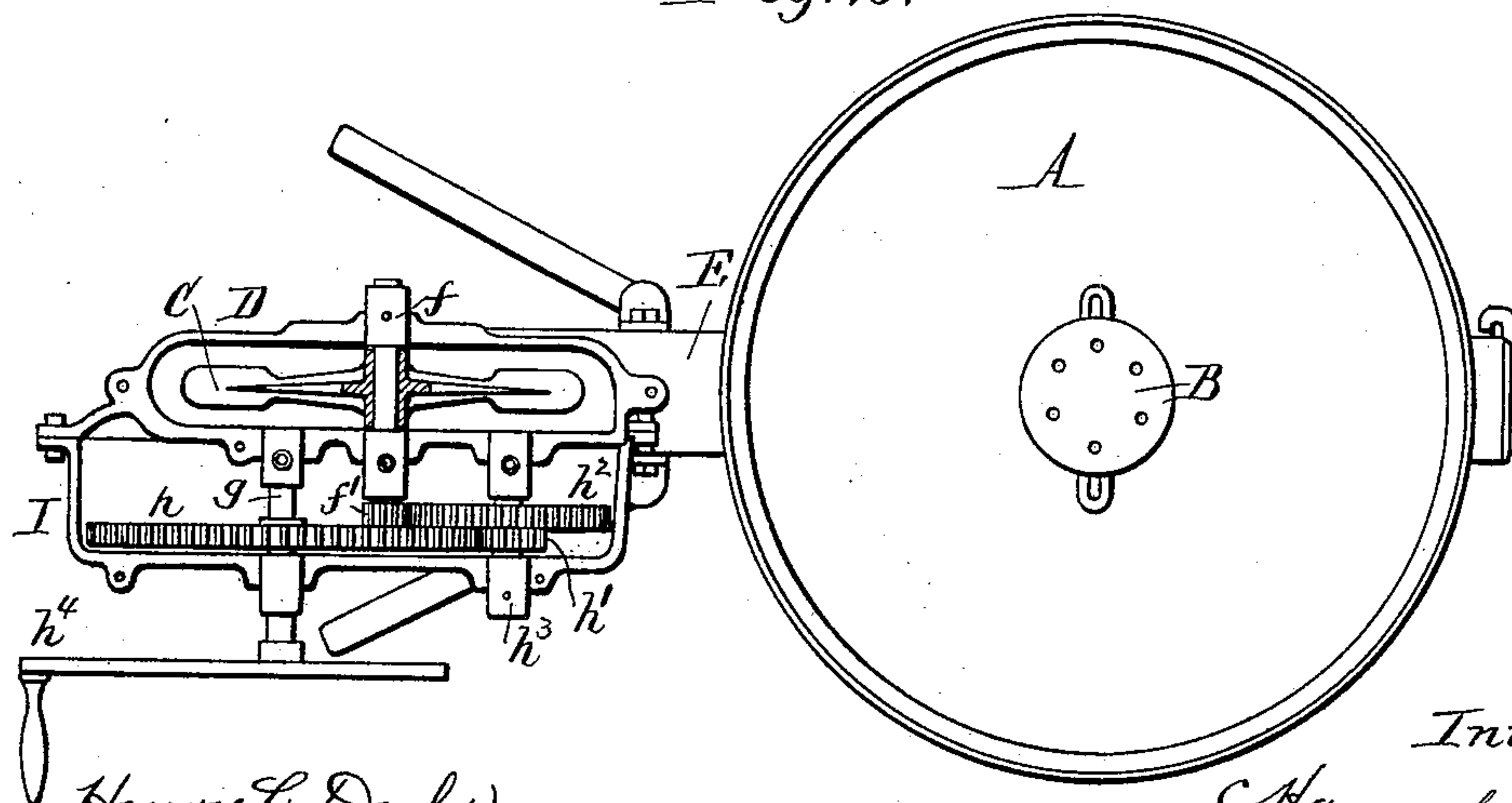


Fig. 2.



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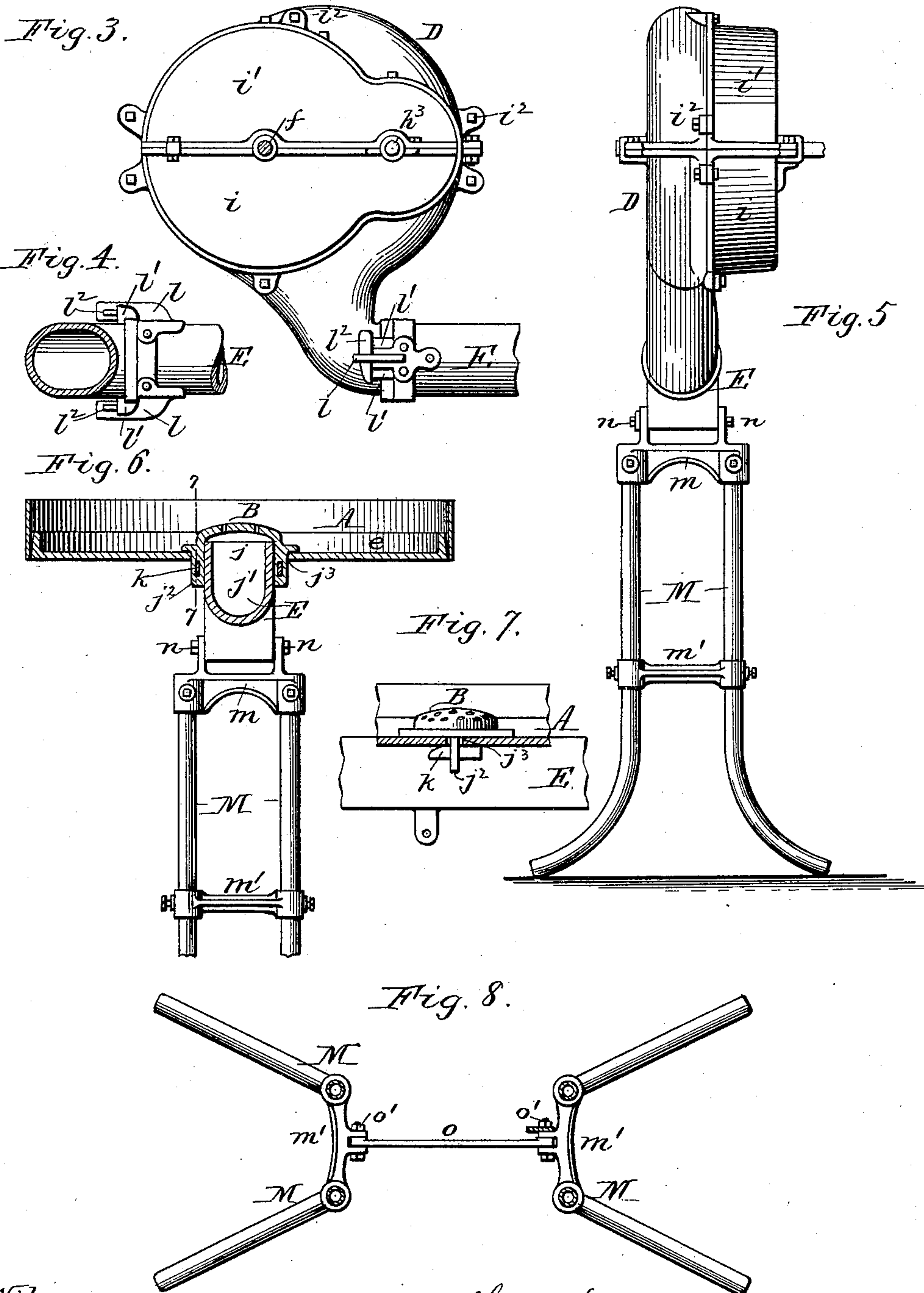
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Witnesses:

Henry L. Deck.

Chas. F. Burkhardt.

Chas. Hammelmann, Inventor.

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UNITED STATES PATENT OFFICE.

CHARLES HAMMELMANN, OF BUFFALO, NEW YORK.

PORTABLE FORGE.

SPECIFICATION forming part of Letters Patent No. 633,314, dated September 19, 1899.

Application filed August 13, 1898. Serial No. 688,518. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HAMMELMANN, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Portable Forges, of which the following is a specification.

This invention relates to portable forges having a blast fan or blower which is driven by a hand-crank and intermediate gearing.

My invention has for its objects to improve the construction of the casing which incloses the driving-gear of the forge, to simplify and improve the means for securing the removable twyer to the hearth, and to provide the forge with folding legs or supports which enable the same to be compactly stored and shipped.

In the accompanying drawings, Figure 1 is a vertical longitudinal section of a portable forge containing my improvements. Fig. 2 is a top plan view thereof, partly in section, with the dash and the upper section of the fan and gear casings removed. Fig. 3 is a side elevation of the blower and gear-case and the twyer-pipe, showing the joint between these parts, the driving-shaft being shown in section. Fig. 4 is a top plan view of said joint. Fig. 5 is an end elevation of the forge viewed from the end at which the blower is located. Fig. 6 is a transverse section of the hearth and the twyer in line 6 6, Fig. 1. Fig. 7 is a vertical longitudinal section in line 7 7, Fig. 6. Fig. 8 is a horizontal section in line 8 8, Fig. 1.

Like letters of reference refer to like parts in the several figures.

A is the hearth of the forge, and A' the removable dash, which parts may be of any ordinary construction.

B is the twyer; C, the fan or blower; D, the case thereof, and E the horizontal pipe or conduit leading from the bottom of the blower-case to the twyer.

The bottom of the hearth is preferably cast in one piece with the twyer-pipe and provided with an integral raised rim *e*, having a tapering outer side, as shown in Figs. 1 and 6, while the side wall of the hearth consists of a separate ring of sheet metal, which is driven over said tapering bottom rim. The lower half of the blower-case is removably secured to the

twyer-pipe E, while its upper half is removably secured to the lower half by bolts, as shown.

f is the shaft of the fan or blower, which extends through the front side of the blower-case and is provided with a gear-pinion *f'*.

g is the main or driving shaft from which the blower-shaft is driven by intermediate gear-wheels *h h'*. As shown in Fig. 2, the wheel *h* is secured to the driving-shaft and meshes with the pinion *h'*, which is mounted on a counter-shaft *h³*, and motion is transmitted from this counter-shaft to the blower-shaft by the gear-wheel *h²*, secured to the counter-shaft and meshing with the pinion of the blower-shaft. *h⁴* is a hand-crank secured to the blower-shaft. These gear-wheels and the main and counter shafts are inclosed by a gear-case or housing I, arranged on the front side of the blower-case and composed of a lower half or section *i*, which is permanently secured to the blower-case, and an upper half or section *i'*, which is removably secured to the lower section and to the fan-case by bolts *i²* or other suitable fastenings, as shown in Figs. 3 and 5. The inner side of the gear-case is open, and when the same is secured to the front or outer side of the blower-case the front wall of the latter forms the inner or rear wall of the gear-case, as shown in Fig. 2. The front bearing of the blower-shaft and the rear bearings of the main and counter shafts *g h³* are formed on or arranged wholly on the front wall of the lower section of the blower-case, while the front bearings of said main and counter shafts are formed on or arranged wholly on the lower section of the gear-case, as shown in Fig. 2, so that no part of the driving-gear is attached to or carried by the upper section of the gear-case. By this construction the parts of the gearing can be conveniently assembled and put in proper working order before securing the cap or upper section of the gear-case to the lower section, and in the event of the cap being broken it can be renewed without requiring the renewal of the entire case.

The twyer preferably consists of a perforated head having a depending marginal rim which fits over a raised rim *j*, formed around the edge of the opening *j'*, by which the twyer communicates with the pipe E, as shown in

Fig. 1. The twyer is provided on opposite sides with downwardly-extending lugs j^2 , which pass through openings j^3 , formed in the bottom of the hearth, and is removably secured in place by horizontal keys or wedges k , which pass through openings formed in these lugs below the hearth-bottom, as shown in Figs. 6 and 7. This construction permits the twyer to be readily removed and replaced by a new one when the same burns out by simply driving the keys k out of the openings of the lugs j^2 . As these keys or fastenings are arranged wholly outside of the hearth, they are not liable to rust and bind, as are bolts or other fastenings which extend into the hearth.

The twyer-pipe is secured to the nozzle of the blower-case by connecting arms or lugs l , secured to opposite sides of said pipe and projecting beyond the end thereof and engaging between the jaws of bifurcated lugs l' , which project radially from the nozzle of the blower-case, as shown in Figs. 3 and 4. The connecting-arms l extend forwardly beyond the bifurcated lugs l' and are retained therein by keys or wedges l^2 , which pass through longitudinal slots or openings formed in the projecting portions of said arms and bearing against said lugs, whereby a tight and secure joint is obtained at this point.

M represents the legs which support the hearth and other superstructure of the forge. The forge is preferably provided with two pairs of such legs and the legs of each pair are connected at their upper ends by a cross-bar m and near their lower ends by a similar bar m' , the legs being preferably formed of ordinary gas-pipe and the cross-bars of cast metal. The lower portions of the legs are spread or bent outwardly to form a wide and stable base. The legs of each pair are hinged at their upper ends to the under side of the twyer-pipe by transverse bolts n , passing through lugs or ears formed on the pipe and the upper cross-bars of the legs, so that the legs can be folded upwardly and outwardly into the position shown by dotted lines in Fig. 1, whereby the forge is reduced to a smaller compass for storing and shipping the same. The two pairs of hinged legs are connected together by a folding longitudinal tie-bar o , which is attached at its ends to the lower cross-bars m' of the legs by removable bolts o' , passing through the ends of the tie-bar and through ears on said cross-bars.

P is an inclined folding brace connecting a pair of the legs with the superstructure of the forge. In the construction shown in the drawings this brace is pivoted at its upper end upon one of the hinge-bolts of the legs

and attached at its lower end to the opposite attaching-bolt o' of the tie-bar o . Upon removing the last-named bolt the lower end of the brace and the adjacent end of the tie-bar are detached and can be folded, and the disconnected legs can then be folded into the dotted position before referred to.

I claim as my invention—

1. In a portable forge, the combination with the hearth, the twyer and the blower, of a horizontally-divided case inclosing the blower, driving-gearing for the blower arranged on the outer side of the blower-case, a horizontally-divided gear-case inclosing said gearing and having its joint arranged to coincide with the joint of the blower-case, the upper section of the gear-case being removably secured to its lower section, rear bearings for the shafts of said gearing arranged wholly on the lower section of the blower-case, and front bearings for said shafts arranged wholly on the lower section of said gear-case, substantially as set forth.

2. The combination with a horizontal blow pipe or conduit and a hearth supported thereon and provided in its bottom with openings arranged on opposite sides of said pipe, of a twyer having integral lugs which extend downwardly through said openings and which are provided below the bottom of the hearth with transverse openings, and keys or wedges passing through the openings of said lugs, substantially as set forth.

3. The combination with the superstructure of a portable forge, of supporting-legs hinged at their upper ends to said superstructure, and capable of folding lengthwise of the forge, a folding tie-bar connecting the legs, and a folding inclined brace connecting one of said legs with the superstructure of the forge, substantially as set forth.

4. In a portable forge, the combination with a hearth and a horizontal twyer-pipe arranged on the under side thereof, of two pairs of folding legs hinged at their upper ends to said twyer-pipe by transverse pins or bolts, a folding vertically-swinging tie-bar pivoted at one end to a pair of said legs and detachably connected with the other pair by a removable bolt, and a folding inclined brace having its upper end pivoted upon the hinge-bolt of the first-named pair of legs and having its lower end detachably connected with the second-named pair of legs by said removable bolt, substantially as set forth.

Witness my hand this 29th day of July, 1898.

CHARLES HAMMELMANN.

Witnesses:

CARL F. GEYER,
ELLA R. DEAN.