(No Model.)

C. T. PARRY.

MULTIPLE DRILLING MACHINE.

No. 257,061. Patented Apr. 25, 1882.

FIG. 2.

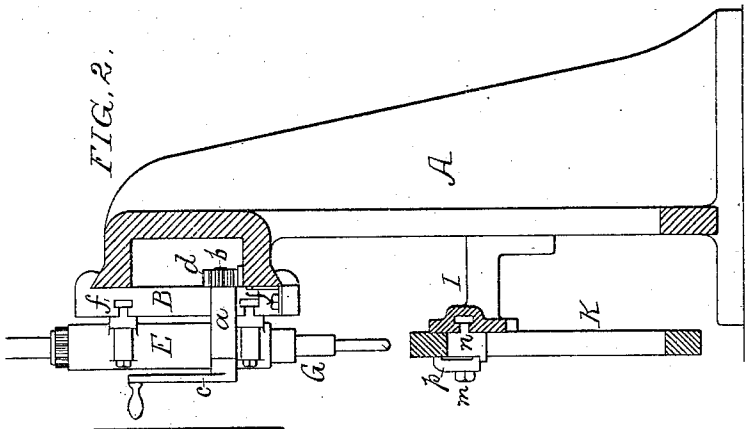
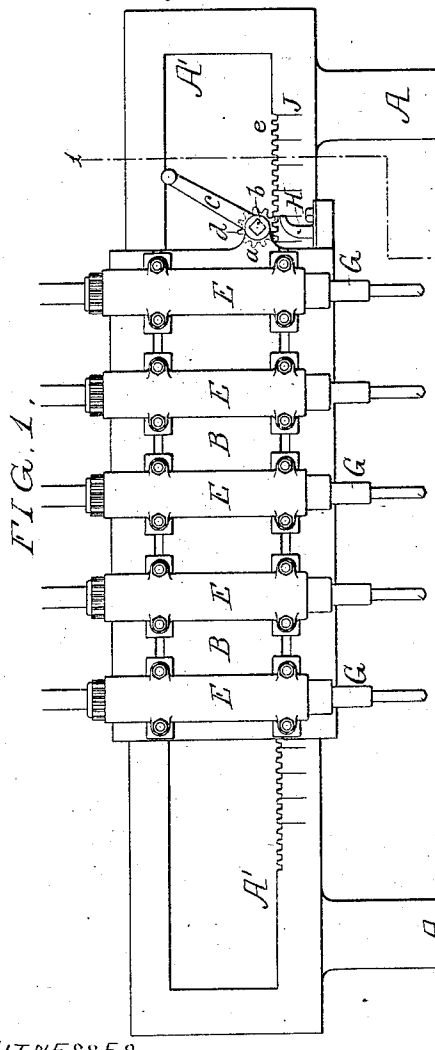


FIG. 1.



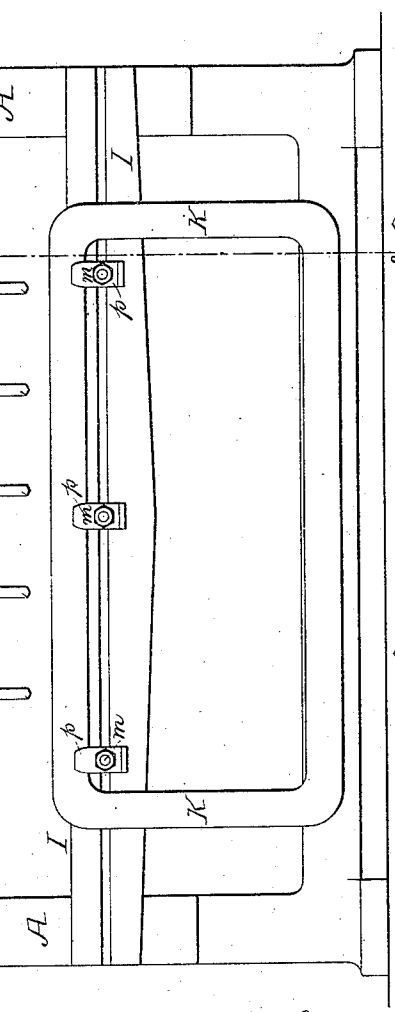


FIG. 4.

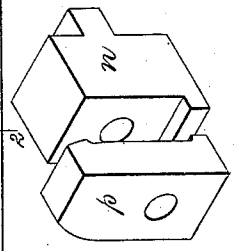
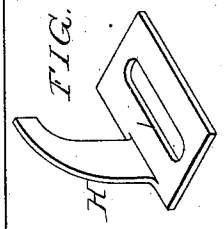


FIG. 3.



WITNESSES:
David S. Williams
Harry Drury

INVENTOR:
Charles T. Parry
by his Attorneys
Howson and Sons

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

CHARLES T. PARRY, OF PHILADELPHIA, PENNSYLVANIA.

MULTIPLE-DRILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 257,061, dated April 25, 1882.

Application filed September 17, 1881. (No model.)

To all whom it may concern:

Be it known that I, CHARLES T. PARRY, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Multiple-Drilling Machines, of which the following is a specification.

The object of my invention is to drill a series of holes at exactly equal distances apart from each other, and to readily and accurately adjust the drill-carriers for boring a succession of holes without resorting to the usual tedious plan of marking out the position of the holes in the object to be drilled and shifting said object after each boring.

In the accompanying drawings, Figure 1 is a front view of my improved multiple-drilling machine; Fig. 2, a transverse vertical section on the line 1 2; Fig. 3, a perspective view of the finger or pointer, referred to hereinafter; and Fig. 4, views of the rest and clamp-plate for confining the object to be drilled to a face-plate.

The frame-work of the machine consists in the present instance of the two standards A A, connected together at or near the base and near the top by the horizontal guide-bar A′, which must in all cases be secured to or form part of the frame, although the latter may be otherwise varied in construction without departing from the main features of my invention.

To the guide-bar A′ is adapted a carriage or saddle, B, in the manner shown in Fig. 2, and on this saddle, preferably near one end of the same, is a bearing or bearings, *a*, for a shaft, *b*, which is provided with a suitable handle, *c*, and carries a pinion, *d*, gearing into a rack, *e*, on the guide-bar, so that by turning the handle the saddle can be traversed to and fro on the said bar. Although I prefer this rack-and-pinion arrangement, other appliances—a screw, for instance—might be used for traversing the saddle. To the front of this saddle are adapted a number of drill-spindle carriers, E—five in the present instance—in such a manner that each carrier can be adjusted horizontally on the saddle independently of the others and secured after adjustment. For this purpose I prefer to form in the saddle two longitudinal T-shaped grooves, *f f*, for receiving the T-heads of bolts which pass through lugs on the carriers, the latter being steadied on the saddle by projections entering the grooves. The saddle carries an adjustable finger or pointer, H, referred to hereinafter.

It has not been deemed necessary to illustrate or describe mechanism for driving and feeding the drill-spindles G of the carriers E, as different well-known contrivances, common to other drilling-machines, may be adopted for this purpose. It is not essential, moreover, that the drill-spindles should be combined with mechanism for feeding the same, as the work to be operated on may be fed to the drills.

While the machine may be used for drilling a number of holes in different objects, it has been especially designed for boring holes through the edges of water-space frames of steam-boilers of the locomotive type, a number of holes at uniform distances apart being demanded for the rivets which secure to the frame the plates constituting the inner and outer shells of the fire-box.

A face-plate, I, is secured to the front of the frame A, and this face-plate has a T-groove for receiving the T-heads of bolts *m*, each bolt passing through a supporting-block or rest, *n*, and through a clamping-plate, *p*, a projection or rib at the back of the block entering the groove in the face-plate. (See Fig. 4.)

The water-space frame K is placed on the blocks—of which there are three in the present instance—and the nuts of the bolts *m* are tightened, so as to firmly confine the frame to the face-plate. In thus securing the water-space frame to the face-plate no adjustment is necessary, the blocks or rests determining the proper position of the frame prior to the drilling of the holes in the same. The distance between the rivet-holes having been determined, a scale, J, is selected to correspond therewith, the scale being made on the face of the guide-bar A′; or a detachable scale may be let into a recess in the face of the bar and there secured. The drill-spindle carriers are adjusted on the saddle to accord with the scale, the distance between the centers of the spindles being an exact multiple of the divisions on the

scale. After the carriers have been thus adjusted the machine is ready to receive the work, which in the present instance is the said water-space frame K, and which is applied and secured to the face-plate in the manner described above. The position of the first hole in the frame having been determined by a center punch-mark, the saddle is moved along the guide-bar until an end drill of the series—the end drill on the right, for instance—coincides with the center punch-mark, when the pointer H is adjusted to coincide with one of the division-lines of the scale and secured after adjustment. The drills are now set in motion, and after the first series of holes has been completed the saddle B is moved forward until the pointer H coincides with the next division of the scale, when another series of holes is drilled, and so on until the desired number of holes at the same distance apart as the divisions on the scale have been bored through one bar of the water-space frame, when the latter is detached from the face-plate and readjusted thereto for boring the desired holes in another bar of the frame.

I claim as my invention—

1. The combination, in a multiple drilling machine, of a guide-bar, a saddle adapted to the same, and mechanism for traversing the said saddle, with a series of drill-spindle carriers secured to the saddle so as to be adjustable thereon independently of each other and in the same direction as that in which the said saddle is traversed, all substantially as set forth.

2. The combination, in a multiple-drilling machine, of a fixed guide-bar, a saddle adapted thereto, mechanism for traversing the same, and a series of drill-spindle carriers adjustably secured to the saddle, with an adjustable pointer on the latter and a scale on the guide-bar, all substantially as set forth.

3. The combination, in a multiple-drilling machine, of a series of adjustable drill-spindle carriers, with a face-plate, I, rests *n*, adjustable thereon, and clamps for confining the object to be drilled, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHAS. T. PARRY.

Witnesses:

HARRY DRURY,

HARRY SMITH.