Nov. 23, 1937. E. T. LARKIN 2,099,898

PORTABLE FOUNDATION FOR MACHINERY

Filed Sept. 16, 1935

Fig. 1.

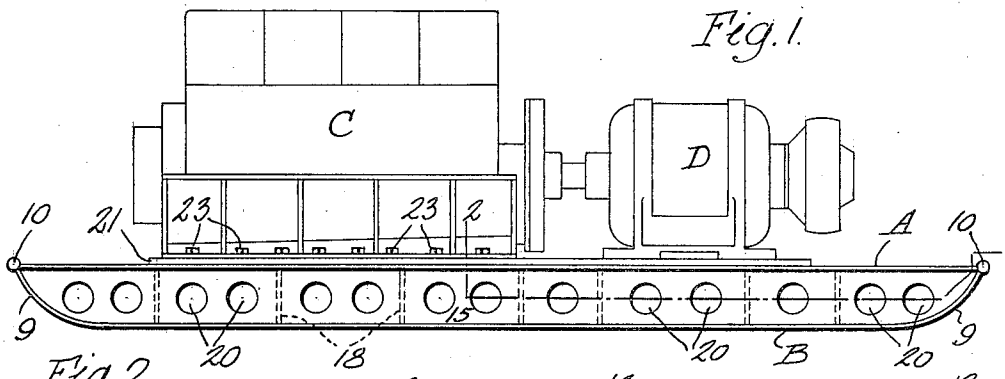


Fig. 2.

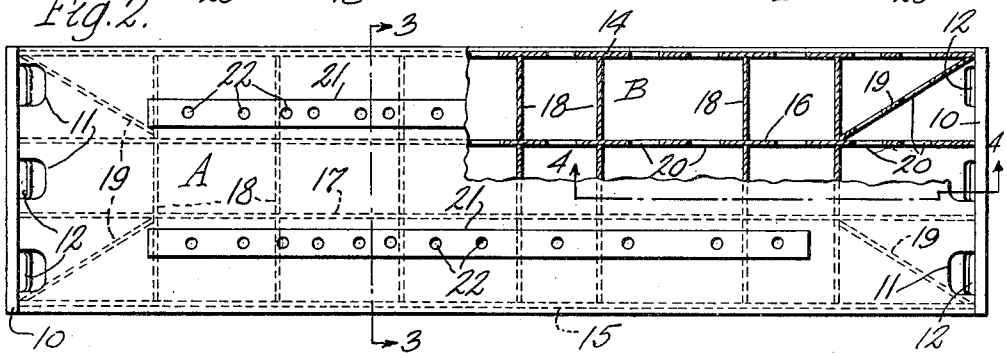
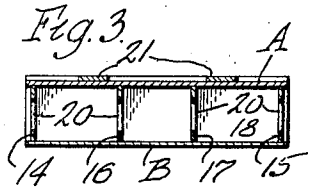


Fig. 3.



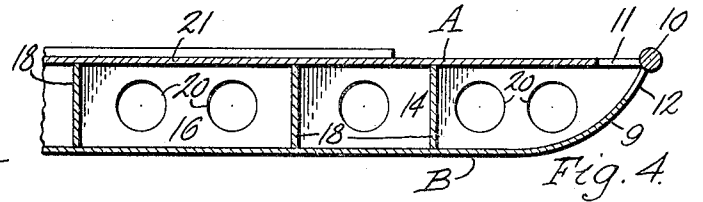


Fig. 4.

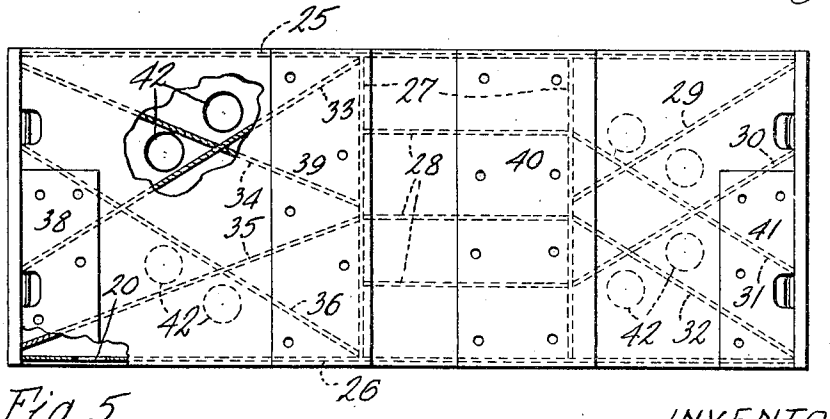


Fig. 5.

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PORTABLE FOUNDATION FOR MACHINERY

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Application September 16, 1935, Serial No. 40,772

2 Claims. (Cl. 280—12)

This invention relates to improvements in foundations or supporting bases for machinery, and particularly to the kind adapted for use in connection with portable machinery.

The objects of this invention are to provide a portable foundation or base for machinery, which is of strong and rigid construction so that the same may be placed upon soft ground or upon uneven surfaces without distorting the foundation so as to interfere with the alinement of the machinery mounted thereon; also to provide a portable foundation of this kind which includes a pair of horizontal plate members substantially coextensive with the foundation, one of which supports the machinery and the other which rests upon the supporting surface, and which are spaced apart and connected by means of upright plates or webs secured to the horizontal plates in such a manner that each plate serves to reinforce the other plate; also to provide a construction of this kind which has a sufficiently large bottom area to support the machinery on soft or swampy soil, and in which the upper plate member is of ample size to provide space for operators while attending to the machinery; also to provide a foundation of this kind with suitable raised pads upon which the legs or base portions of the machinery may be mounted and which pads further serve to reinforce the foundation; also to provide a foundation of this kind which is so constructed as to afford ample opportunity to connect the same to suitable hoisting machinery; also to provide a foundation of this kind with a series of holes extending horizontally through the same, which facilitates the handling of the foundation and the steadying of the same during handling; also to improve foundations of this kind in the other respects hereinafter specified.

In the accompanying drawing:

Fig. 1 is a side elevation of a portable foundation embodying my invention and showing machinery mounted thereon.

Fig. 2 is a top plan view thereof, partly in section, on line 2—2, Fig. 1, the machinery being omitted.

Fig. 3 is a transverse sectional elevation, line 3—3, Fig. 2.

Fig. 4 is a fragmentary longitudinal sectional elevation on line 4—4, Fig. 2.

Fig. 5 is a top plan view, partly in section, of a foundation of modified construction.

Briefly stated, the foundation embodying this invention includes a pair of substantially horizontal plates which are spaced apart and connected together by a series of upright webs or structural members, the upper and lower portions of which are secured respectively to the upper and lower plates, so as to form a rigid structure. A represents the upper plate member of the foundation which is preferably in the form of a continuous plate substantially free from holes or openings therein, and B represents the lower horizontal member which is similarly formed of a plate which is substantially coextensive with the foundation. The opposite ends of the plate B may, if desired, be bent upwardly as indicated at 9 to be joined to the ends of the upper plate A and in order to facilitate the handling of the foundation, the two plates are shown in the accompanying drawing as joined to transverse bars 10, which may for example be of round cross section and to which the ends of the plates A and B may be welded or otherwise secured. In order to permit ropes, chains, or the like from a hoisting device to be connected with the foundation, the upper and lower plates are preferably provided with holes 11 and 12 adjacent to the end rods 10 through which such ropes, chains, hooks, or the like may be passed to engage with the end bars 10. Any other means for connecting hoisting devices to the foundation shown may be employed.

The plates A and B are spaced apart by means of a series of upright plates, webs or structural members which are welded or otherwise rigidly secured to both the upper and lower plates. For example, in the construction shown, the foundation is provided with a pair of side plates 14 and 15 which extend substantially throughout the length of the foundation and are welded or otherwise suitably secured to the side portions of the plates A and B, and if desired, a pair of additional longitudinal members 16 and 17 may be provided between the side members 14 and 15 for providing additional reinforcement of the foundation. Transversely extending upright plates or webs 18 are preferably employed. These members may be in the form of short pieces extending from one longitudinal member to the other and welded to the longitudinal members or they may be in the form of plates extending completely from side to side of the foundation, in which case the longitudinal upright members 16 and 17 may be made of shorter pieces welded or otherwise secured to the transverse pieces.

In order to further reinforce the foundation against strains of various kinds and to increase the rigidity of the foundation, a number of diagonal brace members 19 may be provided, one be-

ing shown at each corner of the foundation. It will be obvious, however, that any additional number of such diagonal plates may be used, if desired, and these plates, of course, are also welded or otherwise rigidly secured to the adjacent longitudinal and transverse upright members and to the plates A and B.

In order to facilitate the handling of the foundation under various conditons, it is also desirable to provide a plurality of transverse holes through the upright members of the foundation, while holes are preferably arranged in the various diagonal members so as to be in alinement crosswise of the foundation, to permit a rod, pipe, or shaft to be extended through the same, which may serve to facilitate the hoisting or handling of the foundation and the machinery mounted thereon or which may on very uneven ground serve to prevent toppling over of the foundation with the machinery mounted thereon. A number of these apertures **20** are shown, but it will be understood that the number of these apertures may be greatly reduced, or if desired, the apertures may be entirely omitted.

The upper plate A of the foundation is preferably also provided with suitable pads upon which the machinery may be mounted. Any number of these pads may be provided, and they are preferably in the form of plates or strips which are welded to the top surface of the plate A. In Fig. 2, a pair of these pads **21** are shown upon which the machinery may be set, and it will be understood that these pads are positioned on the upper plate A wherever they may be necessary to support the machinery. The pads will, consequently, extend above the surface of the upper plate A, and if it is desired to provide for a very accurate mounting of the machinery, the upper surfaces of the pads **21** may be trued by means of a planer, milling machine, or by other means. These pads also serve to reinforce the upper plate A of the foundation and to materially strengthen the same. Each pad may be provided with a plurality of holes or apertures **22** through which the usual bolts or screws **23** for securing the machinery to the foundation may pass. In securing machinery to the foundation, the holes **20** in the upright plates of the foundation may also serve to enable the lower ends of these bolts to be held during tightening. The welding of portions of the upright plates or webs to the plates A and B and to each other may also be effected through these holes or openings.

The foundation described may be used for supporting any suitable or desired type of machinery, and in Fig. 1, is shown by way of example an internal combustion engine C which drives a generator D.

Fig. 5 shows a foundation of slightly modified construction in which upper and lower plates are of different dimensions to accommodate other machinery. In this construction, the side walls **25** and **26** are connected by a pair of transverse upright walls or plates **27**, which are also suitably secured to the upper and lower plates and to the side walls **25** and **26** by welding or other means, as described in connection with Figs. 1 to 4. These transverse plates or walls are connected by longitudinal plates or structural members **28** and one end portion of the foundation may be reinforced by means of diagonal plates or webs **29**, **30**, **31**, and **32**, suitably secured to each other and to the upper and lower plates and to the adjacent transverse member **27**. At the opposite end of the foundation, similar diagonally extending webs **33**, **34**, **35** and **36** are provided.

In this construction, a plurality of transversely extending pads are provided on the top plate to receive the machinery, such as the pads or supporting plates **38**, **39**, **40**, and **41**, which are preferably welded to the top plate. The pads may be omitted, if desired. In the construction shown in Fig. 5, a series of holes **42** is provided in the lower horizontal plate, which afford access to the interior of the foundation for welding the upright webs to each other and to the upper and lower plates. If desired, some or all of these holes may be provided in the upper plate, but when possible the upper plate is kept free from such holes, so that tools or machine parts, when placed upon the foundation will not drop through such holes, and so that persons walking on the foundation while attending the machinery mounted thereon will not be injured by stepping into such holes.

It will be obvious that numerous other arrangements of the upright reinforcing members or plates is possible and the arrangement of these upright plates may be varied to suit the particular type of machinery for which the foundation is designed.

In the use of the improved foundation, it will be obvious that because of the rigid connections between the various upright and horizontal plates constituting the foundation, a very strong and rigid construction results. Temporary foundations of this type may be used under a great many different conditions. For example in oil fields and on construction work, drilling, pumping and hoisting machinery and electric lighting plants such as illustrated in Fig. 1 may be mounted on foundations of this type. The foundations may be placed upon soft soil or upon uneven stony surfaces. Since the bottom plate is substantially imperforate, it will afford a large bearing surface on any soft soil so that the sinking of the foundation into the soil is greatly reduced by means of the construction shown.

Another advantage of the construction described is that the upper and lower plates, because of the fact that the upright plates or reinforcing members are rigidly welded or otherwise secured thereto, form a truss-like structure of exceptional rigidity which is very desirable to prevent the machines supported on the foundation from getting out of alinement. By means of the construction described, the lower plate B through the vertical connecting members serves to reinforce the upper plate A on which the machinery is supported in such a manner as to prevent distortion of this plate, and thus prevent the machinery from getting out of alinement. Similarly through the medium of the upright webs, the upper plate A serves to reinforce the lower plate B when the same is supported on an uneven surface so as to prevent buckling of the lower plate or other damage thereto. The foundations shown in the accompanying drawing can, for instance, support a gasoline engine directly connected to an electric generator while the foundation itself is supported only on diagonally opposite corners thereof without sufficient distortion to interfere with the proper operation of the machinery in any way. The end bars **10** not only serve to facilitate the lifting or the moving of the foundation from place to place, but also impart great rigidity to the foundation. The rigidity of the foundation also serves to stabilize machinery reactions and vibrations and

the strength of the foundation also prevents distortion of the same due to torque reaction originating in the machinery. By means of the construction illustrated, such torque reaction will be resisted not only by the upper plate A but also by the lower plate through the upright webs.

I claim as my invention:

1. A portable foundation for machinery, including horizontal upper and lower plates which are substantially coextensive with said foundation and which are spaced apart throughout the greater portion of their length and which converge at their ends, a transverse bar at each end of said foundation and rigidly secured to the ends of said plates, upright side plates rigidly secured to the edge portions of said upper and lower plates and extending substantially throughout the length of said foundation, a plurality of upright webs arranged in the space between said upper, lower and side plates for reinforcing said foundation and welded to said plates and to each other, said lower plate being provided with openings spaced to permit welding of said webs to said plates and to each other, a series of apertures in said side plates and webs and arranged in alinement to permit insertion of a bar transversely of said foundation, and strips of metal welded to the top surface of the upper plate and forming pads on which machinery may be placed and also reinforcing said foundation.

2. A portable foundation for machinery including horizontal upper and lower plates, said lower plate being substantially of the same area as said foundation, and which are spaced apart throughout the greater portion of their length and which converge and are secured together at their ends, upright side plates rigidly secured to the edge portions of said upper and lower plates and extending substantially throughout the length of said foundation, a plurality of upright webs arranged in the space between said upper, lower and side plates for reinforcing said foundation and welded to said plates and to each other, said lower plate being provided with openings spaced to permit welding of said webs to said plates and to each other, and strips of metal welded to the top surface of the upper plate and forming pads on which machinery may be placed and also reinforcing said foundation.

ELWOOD T. LARKIN.