May 25, 1965 C. E. SPINDLER 3,185,422

COLLAPSIBLE AND ADJUSTABLE MACHINE FRAMEWORK CONSTRUCTION

Filed Dec. 26, 1962 2 Sheets-Sheet 1

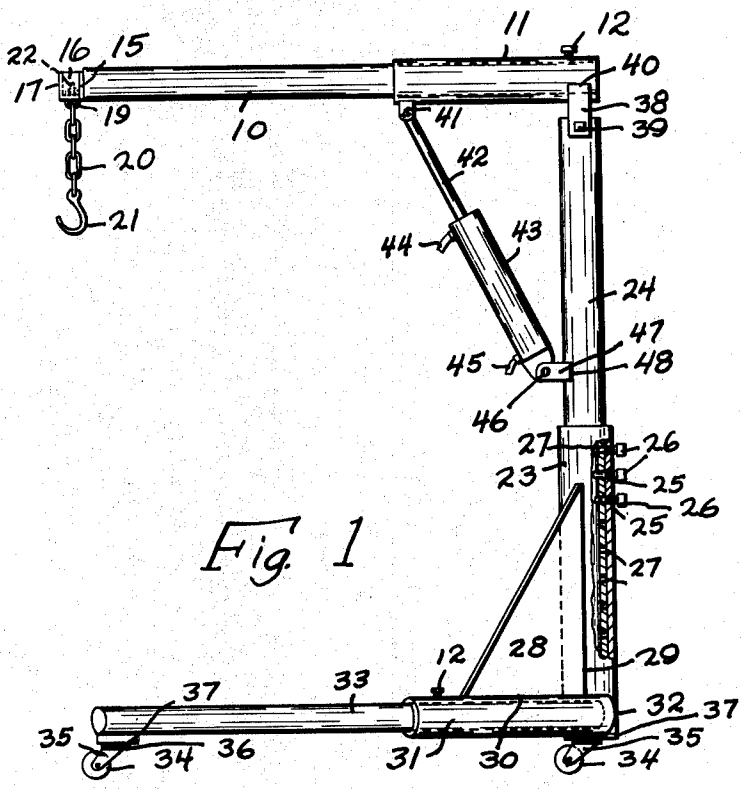


Fig. 1

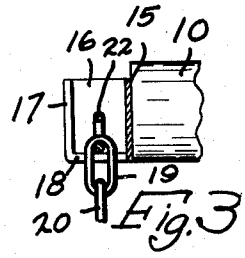


Fig. 3

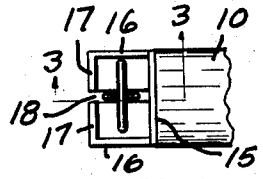


Fig. 4

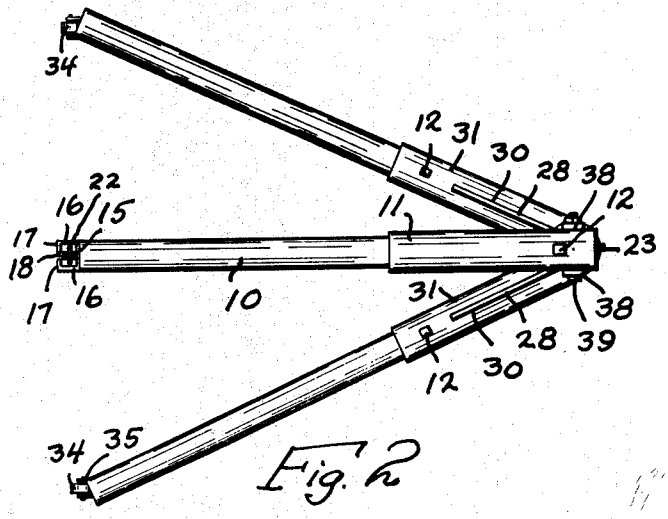


Fig. 2

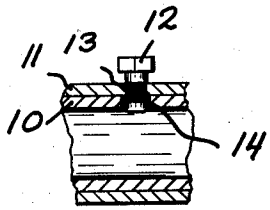


Fig. 5

INVENTOR.
Clemens E. Spindler
BY
Sam J. Slotsky
ATTORNEY

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COLLAPSIBLE AND ADJUSTABLE MACHINE FRAMEWORK CONSTRUCTION

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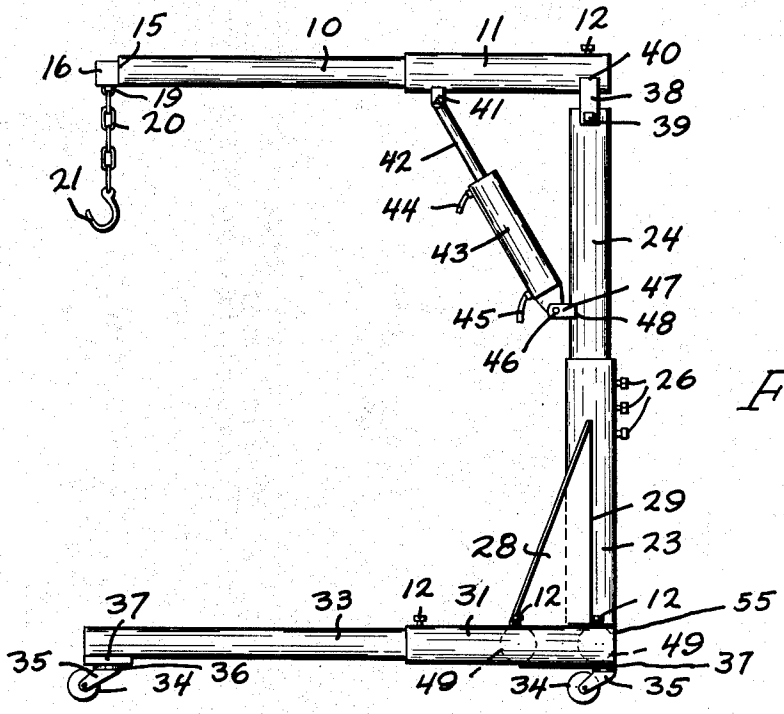


Fig. 6

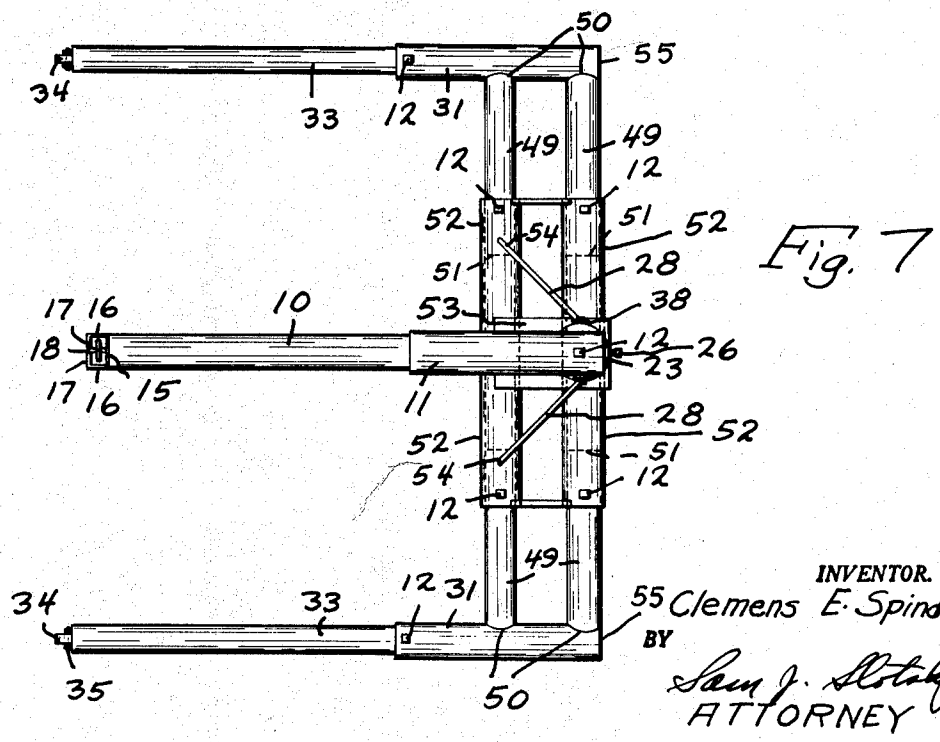


Fig. 7

INVENTOR.
Clemens E. Spindler
BY
Sam J. Slotky
ATTORNEY

United States Patent Office 3,185,422 Patented May 25, 1965

3,185,422

COLLAPSIBLE AND ADJUSTABLE MACHINE FRAMEWORK CONSTRUCTION

Clemens E. Spindler, 315 W. 25th St., Sioux City, Iowa

Filed Dec. 26, 1962, Ser. No. 247,071
1 Claim. (Cl. 248—124)

My invention relates to a collapsible and adjustable machine framework construction.

An object of my invention is to provide a machine, generally of the hoist or crane type which can be collapsed to provide minimum space requirements when transporting the same before being erected.

A further object of my invention is to provide a collapsible arrangement which also includes features wherein stronger supporting sections will be provided due to the general arrangement when the device is being used.

A further object of my invention is to provide certain modifications improving generally the structure contemplated.

With these and other objects in view, my invention consists in the construction, arrangement, and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claim, and illustrated in the accompanying drawings, in which:

FIGURE 1 is a side elevation of a hoist or crane type of machine utilizing my structure with sections broken away,

FIGURE 2 is a plan view of FIGURE 1,

FIGURE 3 is an enlarged sectional view taken along the lines 3—3 of FIGURE 4,

FIGURE 4 is a plan view of FIGURE 3,

FIGURE 5 is an enlarged detail,

FIGURE 6 is a side elevation of a modification, and

FIGURE 7 is a plan view of FIGURE 6.

My invention contemplates the provision of a machine structure which includes certain features wherein the machine can be broken down or collapsed to minimum sized requirements and which machine can be erected into its proper functioning shape, and wherein the resultant shape will include considerably strengthened parts at the collapsible or removable sections.

To illustrate my invention I have used a typical crane or hoist and I have used the character **10** in FIGURE 1 to designate a centrally positioned horizontal pipe which is received within the fairly snugly fitting male pipe **11**, the character **12** indicating a set-screw or bolt which is threadably engaged at **13** (see FIGURE 5) with the pipe **11**, the character **14** indicating an opening in the pipe **10**, this construction thereby locking the pipes **10** and **11** together, the bolt **12** providing means for also locking the sections against relative movement with respect to each other.

Welded as at **15** to the forward end of the pipe **10** is a holder or keeper member comprising a pair of opposed members **16** having the end flanges **17**, these members being spaced apart a slight distance to thereby provide the slot at **18** to receive one of the vertical links **19** of a chain **20**, to which is attached the hook **21**, the character **22** indicating a transversely placed link, this arrangement thereby serving to provide means for supporting the chain **20** in a convenient manner.

I have further used the character **23** to indicate a vertically positioned pipe section in which is received the male pipe section **24**, the section **23** including the threaded openings at **25** adapted to engage the various set-screws or bolts **26**, the character **27** indicating equally spaced openings provided in the member **24**, the character **28** indicates gussets attached as at **29** to the pipe **23**, these gussets being attached at **30** to the angularly positioned further female pipes **31** which are securely welded as at **32** to the pipe **23**, and I have used the character **33** to indicate further male pipes received within the pipes **31**, and with these pipes being secured by means of similar lock bolts **12** threadably engaged with the pipes **31**, and entering into openings **14** provided in the pipes **33**.

The character **34** indicates caster wheels journaled in the casters **35** which are journaled as at **36** to the plates **37**.

The pipe **24** is secured to the pair of ears **38** by means of the through-bolt **39**, the ears **38** being welded at **40** to the pipe **11**.

The pipe **11** includes the further ears **41** to which is pivotally attached a piston rod **42** attached to a suitable piston contained within the hydraulic cylinder **43**, having the hydraulic hose connections **44** and **45**, the cylinder **43** being pivoted at **46** to the ears **47** which are welded at **48** to the pipe **24**, the cylinder **43** providing means together with the hydraulic hose connections, whereby the combined members **10** and **11** can be raised or lowered for lifting purposes. The pipe **24** can be raised or lowered in desired adjusted vertical position by merely replacing the set-screws **26** in any series of three openings, the several screws **26** thereby providing greater supporting strength at any position.

It will be noted from the foregoing structure that the entire crane or hoist can be dis-assembled by removing the bolts or screws **12**, the bolt **39**, the various hydraulic unit connections, and unscrewing the screws **26**, whereby the unit can be conveniently pulled apart, with the various parts being in a completely reduced size for transportation, etc. and it will also be noted that when the unit is in its operating condition as shown in FIGURES 1 and 2, the sections where the male pipes join the female pipes, are substantially thickened at these joints, thereby strengthening the crane or hoist at the most important points where such strength is required.

Figures 6 and 7 illustrate a further modification with identical characters indicating identical parts, however in this construction, I provide the male pipes **49** which are welded at **50** to the pipes **31**, the pipes **31** in this case being parallel to each other as shown in FIGURE 7, the pipes **49** terminating at **51** and being received within the female further pipes **52** which are attached to the central plate **53**, to which the vertical pipe **23** is attached, the gussets **28** being secured as at **54**.

This structure also includes similar locking means, etc., **12**.

By the use of this structure, the pipes **49** can be pulled outwardly as shown, and the pipes **49** can also include spaced openings if desired, and in this arrangement it will be noted that the crane can be passed over larger objects, whereby these objects will be enclosed between the pipes **31**, **32**. In this latter structure, the casters **35** will be attached beneath the ends **55** of the pipes **31**.

It will now be noted that I have provided the various advantages mentioned in the objects of my invention with further advantages being apparent.

Some changes may be made in the construction and arrangement of the parts of my invention without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claim any modified forms of structure or use of mechanical equivalents which may be reasonably included within its scope.

I claim as my invention:

A collapsible and adjustable machine framework construction comprising a vertically positioned tube, a further tube received within said tube, said vertically positioned tube including a plurality of set screws threadably engaged therewith, said further tube having a plurality of

openings for receiving said set screws, a horizontally positioned boom pivoted to said vertically positioned tube at its upper end, a further boom received in said boom, divergent horizontally positioned legs attached to said vertically positioned tube at the lower end thereof, said legs being collapsible, a securing member attached at the end of said further boom, said securing member including a bottom wall and side walls, said bottom wall having an open slot for receiving chain links therethrough, and whereby said chain links can be positioned to secure weights suspended from an assemblage of said chain links.

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CLAUDE A. LE ROY, *Primary Examiner.*

FRANK L. ABBOTT, *Examiner.*