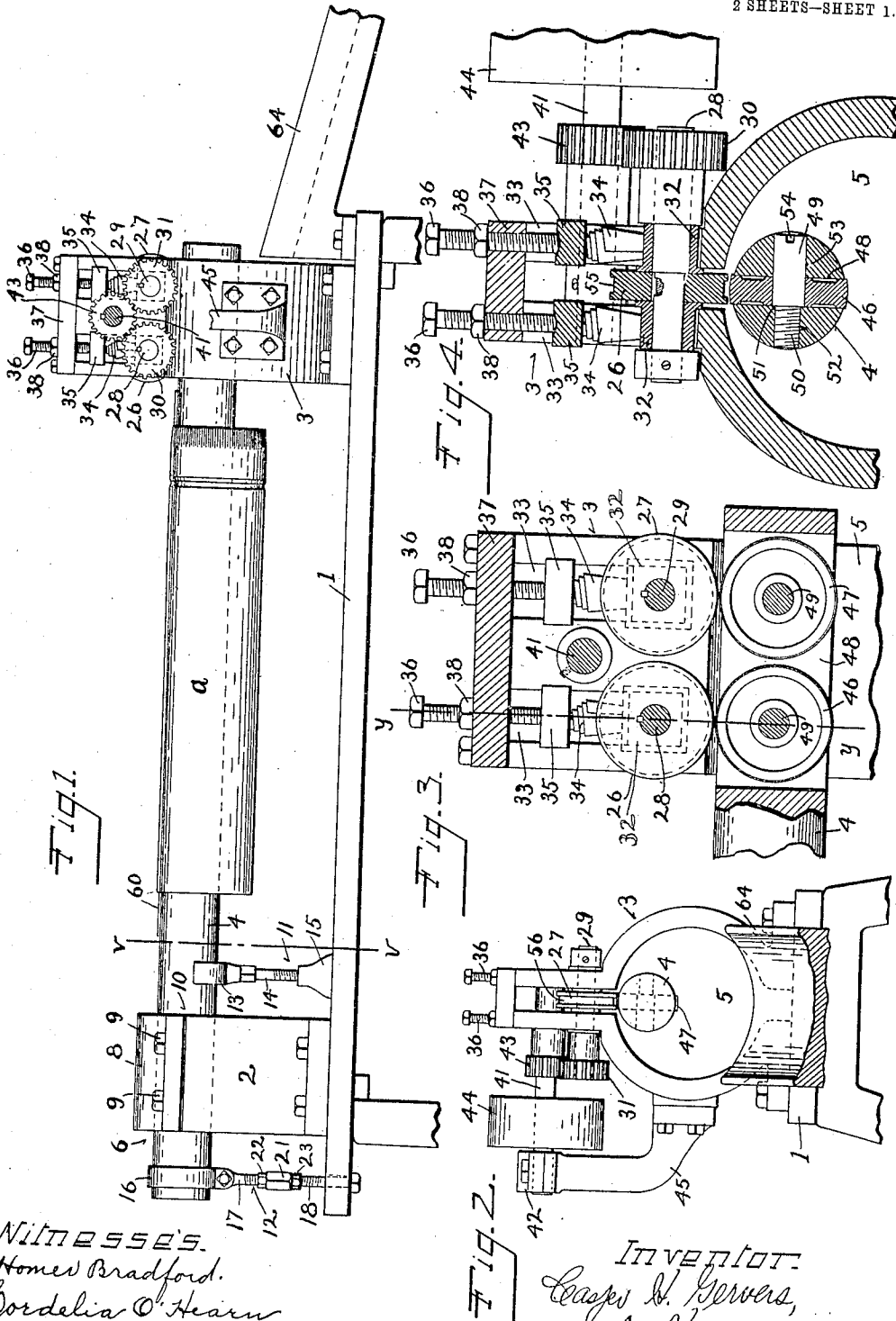


No. 869,704.

PATENTED OCT. 29, 1907.

C. H. GERVERS.
PIPE SEAMING MACHINE.
APPLICATION FILED MAY 20, 1907.

2 SHEETS—SHEET 1.



Witnesses:
Homer Bradford.
Cordelia O. Hearn

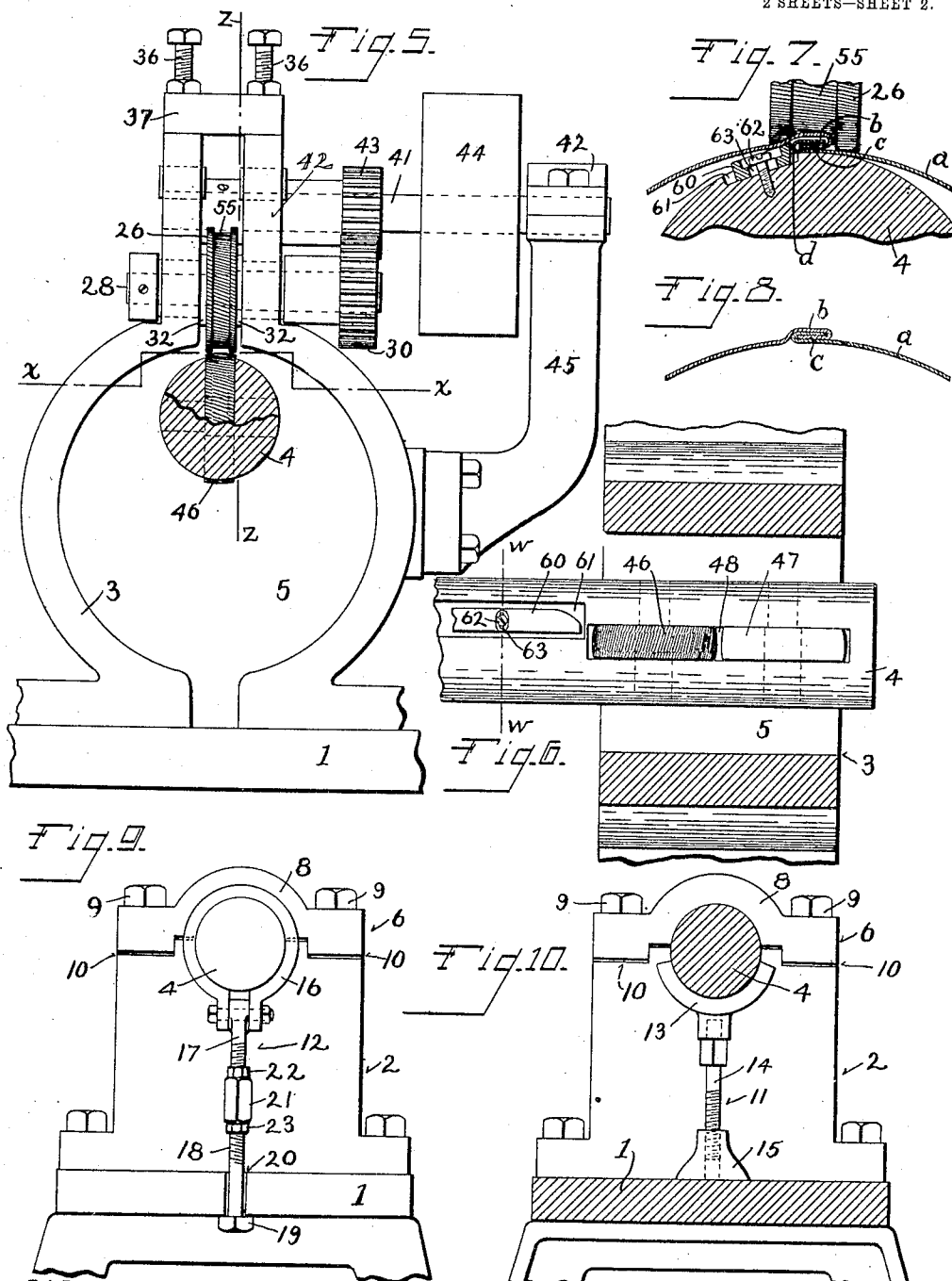
Inventor:
Casper H. Gervers,
by A. H. Herbst, Jr. Attorney.

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Inventor.
Casper H. Gervers,
by B. F. Verbeke, His Attorney.

UNITED STATES PATENT OFFICE.

CASPER H. GERVERS, OF CINCINNATI, OHIO.

PIPE-SEAMING MACHINE.

No. 869,704.

Specification of Letters Patent.

Patented Oct. 29, 1907.

Application filed May 20, 1907. Serial No. 374,590.

To all whom it may concern:

Be it known that I, CASPER H. GERVERS, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Pipe-Seaming Machines, of which the following is a specification.

It is the object of my invention to provide a machine which is rapid in operation for the purpose of pressing down the joint or seam which connects the longitudinal edges of the pipe blank, and is applicable to seaming stove pipes, tubes, tubular receptacles, and pipes of different characters.

The invention will be readily understood from the following description and claims, and from the drawings, in which latter:

Figure 1 is a side elevation of my improved device, with the bearing-bracket partly broken away. Fig. 2 is an end elevation of the same viewed from the delivery end of the machine. Fig. 3 is a vertical longitudinal section of the seaming end of the machine taken on the line $z-z$ of Fig. 5. Fig. 4 is a vertical cross-section of the same on a line corresponding to the line $y-y$ of Fig. 3. Fig. 5 is a head-end view of the roller-housing with the mandrel partly broken away to expose the roller therein. Fig. 6 is a plan view of the delivery end of the mandrel with the housing in section on the line $x-x$ of Fig. 5. Fig. 7 is a detail in section on the line $w-w$ of Fig. 6 showing the guide, with a partly-formed pipe against the same. Fig. 8 is a cross-section of the seam or joint of the finished pipe. Fig. 9 is a head-end elevation of the mandrel with its bearing and its tension-member; and, Fig. 10 is a cross-section on the line $v-v$ of Fig. 1, showing the compression-support for the mandrel.

1 represents the base, on which there is a pedestal 2 shown in the form of a bearing-block, and a roller-housing 3. The pedestal supports a mandrel 4 which overhangs therefrom and extends into the cavity 5 of the roller-housing. The mandrel is preferably clamped in a bearing 6 between the rigid part thereof and the cap 8 of the bearing by means of bolts 9, a space 10 being left between the cap and rigid part of the bearing for insuring firm clamping of the mandrel within the bearing, as the mandrel overhangs and, as will hereinafter be described, is provided with seaming rollers whereby the overhanging end of the mandrel is subjected to great pressure and the bearing thereof to great strain. In order to further hold the mandrel rigid and take up lost motion, I provide a compression support 11 for the mandrel to the inside of the bearing and a tension-resistance member 12 to the outside of the bearing. The compression-support preferably comprises a pillow 13 in which a lifting-screw 14 is swiveled, the screw threading into a support 15. The tension-member preferably comprises a stirrup 16 received about the outer end of the mandrel and connected with a bolt 17.

A bolt 18 is secured against upward yield to the base as by having its head 19 received through a slot 20 in the base. A turn-buckle 21 connects the bolts 17 18, clamp-nuts 22 23 locking the parts in adjusted position. By this means the overhanging end of the mandrel may be given rigidity and looseness or lost motion in the mandrel-bearing taken up.

Rollers 26 27 are secured respectively to shafts 28 29 respectively having thereon gears 30 31. Each of the shafts 28 29 is journaled in bearings 32 slidable in guideways 33 of the roller-housing. Above each bearing there is a spring 34, which I prefer shall be a volute spring capable of great resistance. A block 35 is upon the spring. The tension of the spring may be adjusted by a set-screw 36. These set-screws are threaded into the upper plate 37 of the roller-housing. Jam-nuts 38 secure the set-screws in adjusted positions.

41 is a driving shaft journaled in bearings 42 of the roller-housing and having thereon a gear 43 which meshes the gears 30 31 for driving the rollers 26 27. I have shown a pulley 44 on the driving shaft for driving the latter. One of the bearings 42 may be on a bracket 45.

The overhanging end of the mandrel is provided with seaming rollers 46 47 working in a slot 48 of the mandrel. Each of the rollers 46 47 is supported on a stud-shaft 49 which has a reduced threaded shank 50 for forming a shoulder 51. The threaded shank is received by an internally threaded laterally extending aperture 52 in the overhanging end of the mandrel, the threads extending in the direction of rotation of the roll. The journal-end of the stud-shaft is received by a laterally extending bore 53 of the overhanging end of the mandrel which is in the roller-housing. The shaft is removable by means of a wrench received in a slot 54 in the end of the stud-shaft. The rollers 46 47 in the overhanging end of the mandrel are respectively opposite the rollers 26 27 in the housing, the rollers on the mandrel being within the cavity 5 of the housing. The upper rollers are respectively provided preferably with peripheral grooves 55 and 56. The in-feeding rollers 26 and 46 preferably have knurled peripheral faces as shown for readily gripping the pipe and pulling it between the rollers, the peripheral faces of the out-feeding rollers 27 and 47 being preferably smooth for again flattening out the marks that may be left on the pipe by the knurled peripheral faces of the rollers 26 46. The inside or lower rollers preferably have a transversely curved peripheral face for smoothing the interior of the pipe into rounded form. The mandrel is provided with a guide 60 which preferably extends longitudinally of the mandrel and is received in a depression 61 in the mandrel. It is preferably adjustable by screws 62 threaded into the mandrel and passing through slots 63 in the guide, the guide being clamped between the heads of the screws and the mandrel.

The purpose of the machine is to seam a pipe, the longitudinal edges of the blank of which have been provided with flanges adapted to interengage. Thus I have shown a pipe blank *a* provided at one edge with
 5 an outwardly bent flange *b* and at its other longitudinal edge with an inwardly bent flange *c*.

In operation the blank while open is placed about the mandrel between its support and the roller-housing, whereupon the flanges are engaged with each other.
 10 The guide 60 is so positioned that the inner edge *d* of the outwardly extending flange *b* may rest against the side of the gage, which is so positioned as to be in line with one of the shoulders of the peripheral grooves of the rollers so that the flanges may be received by the
 15 roller-grooves, the grooves being sufficiently shallow to insure that the seam be firmly pressed together in passing between the rollers. It will be noted that the diameter of the mandrel is substantially less than the diameter of the pipe being seamed, the pressure of the
 20 housing-rollers being exerted against one side of the mandrel only at the end thereof overhanging into the housing, the cavity in the housing being sufficiently large to accommodate pipes of various diameters, any of which can be seamed, as the rollers exert their pressure against one side of the mandrel only. The upper
 25 or outer rollers continuously rotate and as soon as the pipe is pushed forwardly into engagement with the rollers, it is immediately fed between the rollers and slipped off the overhanging end of the mandrel when
 30 it may be received by a suitable shelf 64 or other delivery devices and may be readily, quickly and easily removed. There is sufficient spring in the pipe-blank to cause the flanges when interlocked to press outwardly with relation to each other when placed over the mandrel, and various sizes of pipe may be seamed with em-

ployment of a given mandrel. The pipe-blanks may be quickly placed about the mandrel and follow each other in rapid succession in passing between the rollers.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a pipe seaming machine, the combination of a mandrel-support and a roller-housing spaced apart by the length of pipe to be seamed, a mandrel secured in said mandrel-support and overhanging into said roller-housing free of support adjacent to said housing, a feeding-roller in said housing, an idler-roller in said mandrel co-acting with said last-named roller, means for driving said feeding-roller and thereby feeding the pipe being seamed longitudinally of said mandrel between said rollers, with roller-pressure exerted upon said mandrel from one side thereof, the rest
 40 of the circumference of said mandrel being free from roller-pressure, and a lateral gage on said mandrel between said roller-housing and mandrel-support along which the curved edge of one of the flanges of the pipe travels and is guided while the pipe is being seamed, substantially as described.

2. In a pipe seaming machine, the combination of a housing, a seaming roller journaled therein, a bearing-block, a mandrel in said bearing-block overhanging into said housing, a seaming roller journaled in the overhanging end of said mandrel opposite said first-named roller, and an adjustable tension-member connecting with the head-end of said mandrel, substantially as described.

3. In a pipe seaming machine, the combination of a housing, a seaming roller journaled therein, a bearing-block, a mandrel in said bearing-block overhanging into said housing, a seaming roller journaled in the overhanging end of said mandrel opposite said first-named roller, an adjustable compression-member adjacent said bearing-block between said bearing-block and housing, and an adjustable tension-member connecting with the head-end of said mandrel, substantially as described.

In witness whereof, I have subscribed my name hereto in the presence of two subscribing witnesses.

CASPER H. GERVERS.

Witnesses:

THEODORE C. JUNG,
 CORDELIA O'HEARN.