

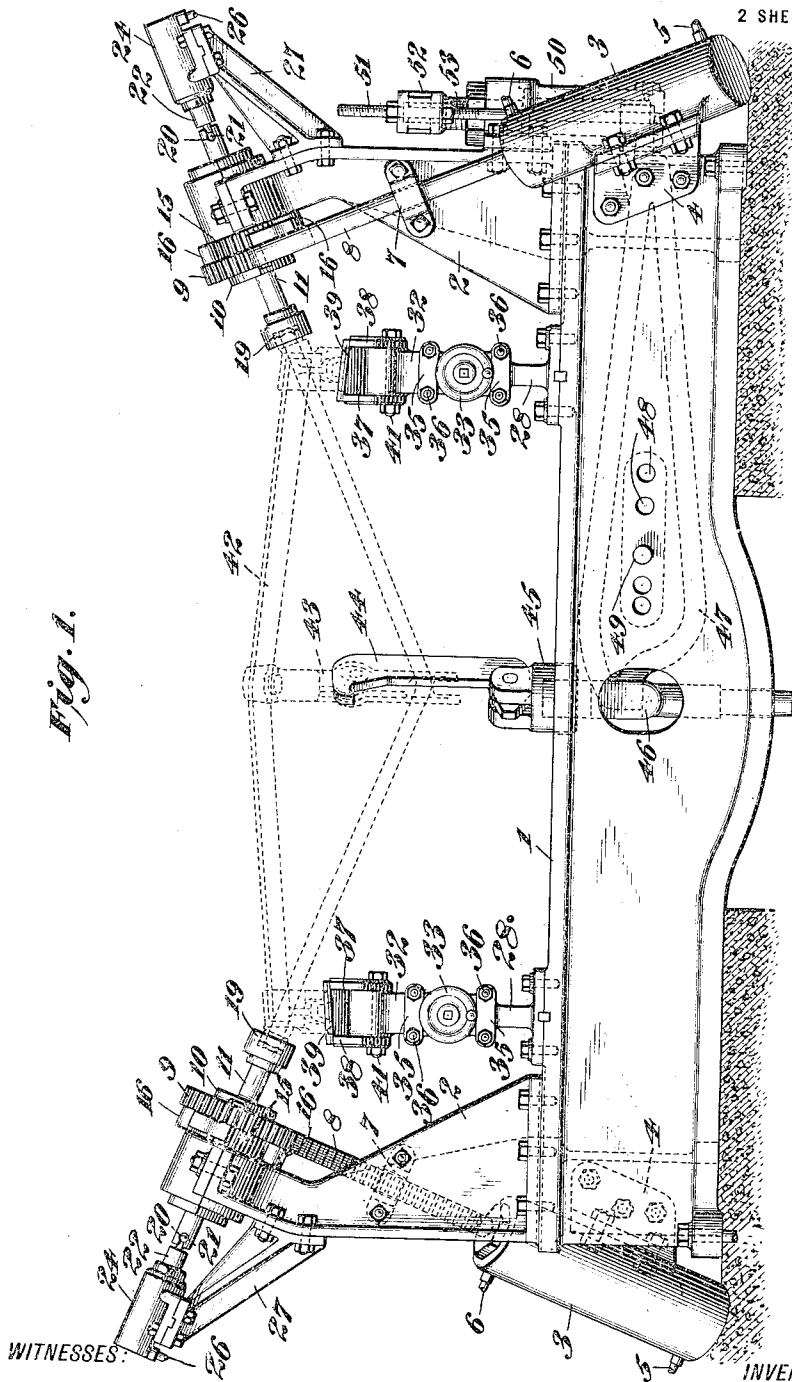
F. R. WEAVER.
BRAKE BEAM ASSEMBLING MACHINE.
APPLICATION FILED FEB. 16, 1915.

1,144,974.

Patented June 29, 1915.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

Oliver Leavay
Henry S. Sharp

INVENTOR

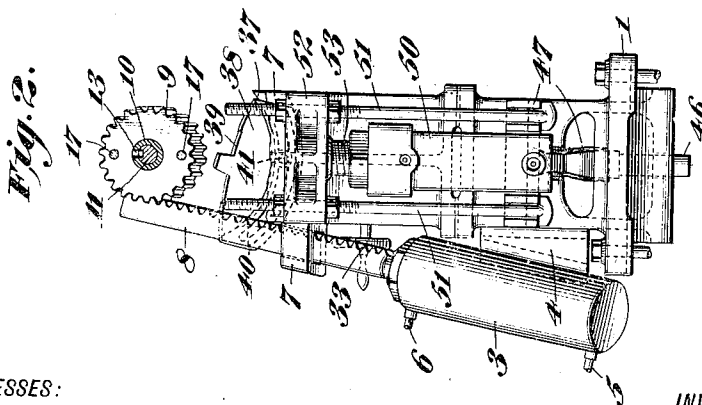
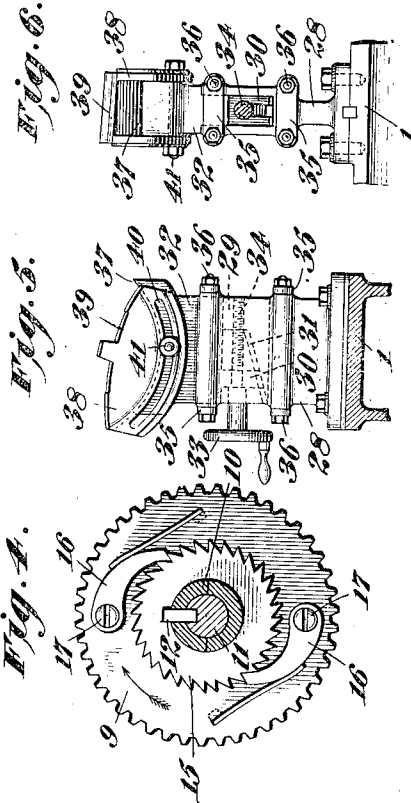
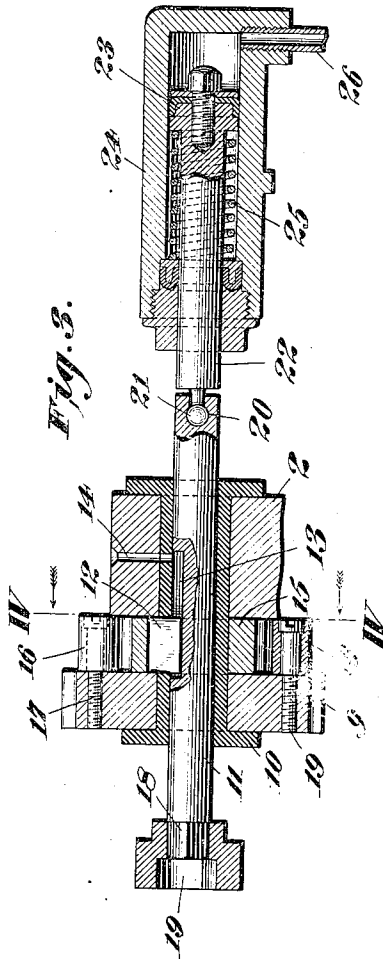
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WITNESSES:

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UNITED STATES PATENT OFFICE.

FRANK R. WEAVER, OF SOUTHMONT, UPPER YODER TOWNSHIP, CAMBRIA COUNTY, PENNSYLVANIA, ASSIGNOR TO DAVIS BRAKE BEAM COMPANY, A CORPORATION OF PENNSYLVANIA.

BRAKE-BEAM-ASSEMBLING MACHINE.

1,144,974.

Specification of Letters Patent. Patented June 29, 1915.

Application filed February 16, 1915. Serial No. 8,492.

To all whom it may concern:

Be it known that I, FRANK R. WEAVER, a citizen of the United States, and a resident of Southmont, Upper Yoder township, county of Cambria, and State of Pennsylvania, have invented certain new and useful Improvements in Brake-Beam-Assembling Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an assembling machine that is adapted to secure together the parts of metal apparatus or structures, and comprises adjustable supporting means, securing means for holding the structure to be assembled in position and means for screwing the nuts on the threaded bolts thereof whereby the structure is firmly bound together.

My machine is particularly adapted to assemble brake beams and it is also adapted to assemble other structures such as bolsters, trusses, columns, girders and various other items as will be readily understood.

Referring now to the annexed two sheets of drawings which form part of this specification and in which like characters of reference refer to like parts:—Figure 1 is a front elevation of my machine showing in dotted lines a brake beam in position for assembling, Fig. 2 is an end elevation with certain portions removed or broken away and others in section to more clearly indicate the various parts of the apparatus, Fig. 3 is a vertical longitudinal sectional elevation of one of the twisting heads showing the fluid pressure cylinder connected therewith for longitudinally moving the twister shaft, Fig. 4 is a vertical transverse sectional elevation taken on the line IV—IV of Fig. 3, Fig. 5 is a transverse sectional elevation showing one of the brake head supports and Fig. 6 is a front elevation of the parts shown in Fig. 5.

Referring now to the various characters of reference on the drawing:—1 is the base frame of the machine, 2 are the standards or side brackets thereof, 3 are fluid pressure cylinders adapted to traverse the rack bars 8 for the purpose of screwing up the nuts of

the brake beams, 4 are brackets whereby the fluid pressure cylinders 3 are secured to the base 1, of the machine, 5 and 6 are pipe connections for delivery and exhaust of fluid to the cylinders 3, which cylinders are also provided with suitable pistons or plungers therein, 7 are keepers or guides adapted to maintain the rack bars 8 in alinement, these rack bars 8 being the prolongation of the piston rods which operate in the cylinders 3, 9 are pinions which mesh with the racks 8, 10 is the inner spool shaft of the twister head, 11 are the twister shafts which, as shown, are provided with keys 12 whereby they are slidably secured to the ratchet wheels 15, the keyway 13 in the shaft being considerably longer than key 12 so that the shaft may slide longitudinally backward and forward, and 14 is an oil way adapted for the lubrication of the moving parts. Ratchet wheels are indicated as 15 which are provided with teeth, as shown, in which pawls 16 are adapted to operate, as clearly illustrated in Fig. 4. The pawls 16 are pivoted to the pinion 9 by means of the screw pivots 17. The inner ends of the twister shafts are formed square at 18 and have sockets or socket wrenches 19 mounted thereon, as shown, these socket wrenches being adapted to fit any size or form of nut as desired. As indicated particularly in Figs. 1 and 3, 20 is a ball socket formed on the end of the twisting shaft 11 in which fits the end ball 21 which is formed or mounted on the end of the piston rod 22. The piston rod is provided with the piston 23, as illustrated, which operates in a fluid pressure cylinder 24. Surrounding the piston rod 22 is the coil spring 25 which is adapted to retract the piston rod after it has been forced forward by fluid pressure. The fluid pressure pipe connections of the cylinders 24 are indicated at 26.

27 are brackets which secure the cylinders 24 to the bracket frames 2 of the machine.

The base of the head-rest is indicated at 28, the threaded projection of same being indicated at 29 whereby the elevation of the head-rest is adjusted as desired. The adjusting block 32 is provided with the bifurcated downwardly projecting inclined portions 30, as illustrated, the adjustment being

accomplished by means of the inclined surfaces 31 whereby the adjusting block 32 may be moved up or down by the hand wheel 33 which is connected with the adjusting screw 34, all as clearly shown in Figs. 5 and 6. Retaining links are indicated as 35 which are secured in place by means of the bolts 36. On the upper surfaces of the adjusting blocks 32 are arcuately formed ways 37 on which are mounted the adjustable head rests 38, each rest being provided with an upper face 39 adapted to conform to the shape of the part to be assembled. An arc shaped slot 40 is provided in the adjustable head rest 38 and a bolt 41 for securing same in any position desired.

As indicated by the dotted lines, 42 represents a brake beam which has the usual central strut 43 and tension member with screw threaded ends and nuts while 44 is a yoke adapted to cooperate with the strut and hold the brake beam in position on the machine. This yoke 44 is provided with couplings 45 and 46, as illustrated, and in the coupling 46 rests the end of the testing lever 47. This testing lever is adapted to be oscillated on the fulcrum pin 49 which pin may be set in any of the holes 48, as illustrated, to make a greater or less leverage as desired. At the other end of the testing lever a fluid pressure testing cylinder 50 is provided, the testing cylinder being equipped with tension rods 51, yoke 52 and adjustable plunger 53. By admitting fluid pressure to the cylinder 50 the lever 47 is rocked in such a way that a downward pull of any desired amount can be given to the brake beam 42 either for the purpose of testing or holding it in position on the assembling machine.

The operation of my apparatus is as follows:—The adjustable rests for the brake heads 38 are set to position adapted to receive a brake beam of the kind to be assembled, the parts of the beam are placed in position, namely: the compression member, the strut and the tension rod, which rod is provided with screw threaded ends adapted to receive the nuts as illustrated. The nuts are placed in the sockets 19 or started on the bolt ends by hand, whereupon the fluid pressure is admitted to the cylinders 24 which press the socket wrenches down firmly on the nuts, whereupon fluid pressure is admitted to the cylinders 3 which turn the shafts 11 and the wrenches 19 mounted thereon, which firmly screw up the nuts. By reason of the ratchet wheel 15 and the pawls 16 the rack bars 8 may be retracted and by repetition of the strokes of the rack bars 8 the nuts are screwed home to any desired degree of tightness. During this process fluid pressure is communicated to the cylinder 50 which rocks the testing lever 47 and pulls the brake beam downward on its supports

by means of the cooperation of yoke 44 with the strut 43. After this is done the brake beam is removed, another one is put in its place, the nuts started and the operation is repeated as before described.

Although I have described and illustrated my invention in considerable detail, I do not wish to be limited to the exact and specific details thereof, as shown and described, but may use such modifications in, substitutions for, or equivalents thereof, as are embraced within the scope of my invention, as pointed out in the claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. In a machine of the character described, a pair of supports adapted to receive a brake beam having a screw threaded member provided with nuts on the ends thereof, a pair of socket wrenches adapted to receive said nuts, rotatable shafts on which said socket wrenches are mounted, means for traversing said shafts longitudinally and for rotating the same, whereby the nuts are screwed as tightly as desired.

2. A brake beam assembling machine comprising a pair of supports adapted to receive a brake beam, means for adjusting said supports, means cooperating with the brake beam adapted to hold the same firmly on said supports, a pair of socket wrenches mounted on rotatable shafts adapted to cooperate with the nuts of the threaded member of the brake beam, power means for rotating said wrenches and for traversing them longitudinally, whereby the nuts are screwed as tightly as desired.

3. In a machine of the character described, a socket wrench mounted on a rotatable shaft, a spur wheel revolubly mounted on said shaft and provided with pawls pivoted thereto, a ratchet wheel slidably mounted on said shaft, adapted to cooperate with said pawls, a rack meshing with said spur wheel and adapted to rotate the same in one direction.

4. A machine of the character described, comprising a socket wrench mounted on a rotatable shaft, a power cylinder and connections adapted to move said shaft longitudinally, a spur wheel keyed to said shaft, a ratchet wheel adjacent to and pawl connected to said spur wheel, a rack meshing with said spur wheel and provided with a power cylinder adapted to reciprocate said rack, whereby said wrench is rotated in one direction by successive movements of said rack, and traversed longitudinally, whereby a nut may be screwed on a bolt.

5. A machine of the character described, comprising a pair of adjustable supports adapted to receive a brake beam, and capable of vertical adjustment, the upper surface of said supports being adapted to be adjusted

rotatably to incline the upper surfaces as
desired, means cooperating with the brake
beam adapted to clamp the same on said sup-
ports, and power driven wrenches adapted
5 to screw the nuts on the ends of the threaded
members of the brake beam.

In witness whereof I have hereunto set
my hand in the presence of two witnesses.
FRANK R. WEAVER.

Witnesses:

OLIVER B. HICKOX,
ELMER SEAVEY.